JUNE, MDCCCLX.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, ANNELIDES,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CCXVII.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

Price ONE SHILLING.

The Name, Paging, &c., of the 'Zoologist.'

From T. E. Fletcher, Esq.

Though not a contributor or a "subscriber from the first," yet as an interested and admiring reader of the 'Zoologist,' perhaps you will allow me to say that I trust you will not think it necessary to alter either the name or character of that excellent periodical; an equally suitable name cannot be found, and, without any disrespect to Mr. Maw's opinions, I believe that its usefulness and stability would not be increased by the insertion of botanical news. I quite agree with the Rev. J. Greene's remark, "With each year I should recommence the paging." I would also suggest, if you decide on a new series, that it should be called "Zoologist, Second Series," as I opine that at a future day a third series will be thought as needful as a second is now.—*56, Sidbury, Worcester.*

From. S. P. Saville, Esq.

As one of your subscribers and a contributor for some years might I be allowed to say that I trust you will not change the time-honoured name of the 'Zoologist.'—*Jesus Terrace, Cambridge.*

To Correspondents.

Eggs of Ptilodonta palpina.—If any entomologist would wish for the eggs of Ptilodona palpina or Speranza conspicuata, and will forward boxes and postage, I shall be happy to send them as long as they last. If preferred, I can send perfect insects.—*Rev. J. Greene; Cubley Rectory, Doveridge, Derby.*

Thomas Edward.—The two beetles are Hamaticherus Sutor and Acanthocinus Ædilis; the latter has the very long antennæ. I am much obliged for them.—*E. N.*

P. T. O.—I cannot admit your offer to *exchange;* any offer to give I will most cheerfully insert gratuitously.—*E. N.*

Two important papers on Hymenoptera, one by Mr. F. Smith, the other by Mr. D'Urban, are unavoidably postponed; they will take precedence of everything else in the June number.

The proffered papers on the Geographical Distribution of British Sphinges and British Butterflies are declined with best thanks; they appear to me to have no bearing on Zoology; the fact of a species not being observed in a particular locality does not imply its absence, unless there dwelt a Doubleday, a Bond or a Power on the spot.—*E. N.*

Proceedings of Natural-History Collectors in Foreign Countries.

Mr. H. Mouhot.*—Mount Sabab, Koumban, Chantaburi, Siam, June 6th, 1859.—Siam is not so good a country for the naturalist as is generally imagined. This country offers nothing very brilliant in colour, nor extraordinary in the form of its productions. There are also difficulties to contend with seldom found in other countries; the indolence of its inhabitants, their state of slavery, besides their religion, which forbids them to kill any animal, give you to understand at once that you must not expect much assistance from them. I am also obliged to go on groping my way, as it were, and making new attempts, for all the Europeans established at Bankok are of opinion that this country is inexplorable, on account of its climate and dangerous inundations, and effectively I find that the localities which would prove the most productive are just those which are uninhabitable, even for the natives, during the greater part of the year.

Now, however, I feel assured that you will be infinitely better pleased with the collection I am sending you, for it consists, for the greater part at least, of very good species,—Lucani, Longicornes, Anthribi, good Carabi, &c.,—captured just where you now recommend me to search, principally at the foot of the mountains, on their sides and under the bark of dead trees, so that during the last two months the hatchet has been more at work than the net. I send you only about thirty butterflies, as they are rare and mostly very common. Birds are excessively rare here; they retire to the plains or the woods during the dry season, and are only found on the mountains during the inundations. During the time I have been on Mount Sabab I have only seen one hawk and not a single partridge, quail or pheasant, and yet I pass the greater part of my time out of doors, and had we not made our provision of dried fish and rice we should be obliged to eat the insects instead of sending them to you, or died of hunger.

Though I have only been three months in this province I am about to leave it, and am going on to Cambodia, which I believe to be much richer, being more woody, less cultivated and more thinly inhabited. By waiting longer I should lose a whole year, as the rainy season is commencing, and soon all communication with that country will be at an end until the dry season again commences.

The topography of this country being so little known I cannot yet tell you in what part I shall take up my abode; it will probably be

---

* Communicated by Mr. S. Stevens.

BRITISH MUSEUM

beyond Bakambong, near the first mountainous district I shall find in Cambodia. I propose our travelling on elephants 100 or 150 miles; and in the month of January I expect to bring my collection to Bankok, returning by the north-east; until then you will probably hear nothing more of me, and I shall be deprived of the pleasure of hearing from Europe. Be patient then, and be assured that I shall not mind what privation or trouble I undergo, so that I discover what is rare or new.

After having received the collection I now send you, it having been made in a mountainous district, you will be able to judge what the country is really worth. Be so kind then as to give me your advice as to which will be the best locality for next year. My intention at present is to go as far as Chieng Mai, near the frontiers of China and the Birman empire, quite at the north of the kingdom of Siam; you will then see whether the north-east or the north-west is the best. The mountains on the northern extremity, and almost dividing Cochin China from Siam, undoubtedly must be good, and should offer the productions of both countries; travelling in that direction would not be excessively dear, or would you rather advise me to go as far as the Kalmouks or the Tickhohos or Tickdohos before returning south. The rainy season has now commenced, after five months of dry weather such as has not been seen for thirty years; it brings with it insects, but plenty of mosquitoes and leeches as well. It will be many years before I regain all the blood which those tormenting suckers have drawn from me. What I most fear is to be obliged to remain several months without being able to do much, as the rain begins to fall in torrents, and keeps me in doors four or five days together. Again I have to combat with the ants and cancrelats, spiders and other destructive insects, which the rain obliges to seek for refuge in houses, and which from time to time, notwithstanding the greatest precautions, destroy part of my collections. I find that ashes put round the feet of the table prevent the former from reaching them quite as well as, and even better than, wood oil, which dries very quickly, or water, which evaporates very soon. I have no other or better remedy against the latter than to rub every evening the exterior and edges of my boxes with wood oil, mixed with the oil of the cocoa to make it more liquid and sticky; I also dissolve a little naphtaline and camphor, the smell of which keeps off all winged insects; but fish oil, of which I have none at present, is incomparably better than all. The damp is also another terrible enemy, against which fire is the only remedy, so that I am obliged almost every rainy day to place my boxes in a warm place, where there has been a good fire, of which nothing remains but hot coals and ashes, and to take care to turn them frequently. To kill insects I employ a means which I consider preferable to all others: I have a tin biscuit-box of very small dimensions, closing hermetically and with ease; in case of need I slip into it the small flat pieces of cork upon which I have pinned my insects; I then close it and expose it for a few minutes to the sun, or near the fire if the day is cloudy. In this manner the most lively insects, such as the Longicornes and the Lucani, soon die. They also dry very quickly when exposed to the sun in a tin box left open. As to the skins of birds I put them in a box on cotton, taking care above all that the edges are well covered with it; that alone is sufficient to prevent the ants from penetrating. It very often happens that a bird is brought to you with its delicate plumage covered with blood, and after having washed it you have no plaster to dry it; fine sand will, however, answer every purpose; you have only to rub the feathers after having washed the bird with rather a hard brush until it is quite clean and dry; of course the drier and warmer the sand is the better it will answer your purpose. Should you think that these few remarks might be useful to collectors, and especially to travellers, I shall be obliged to you if you will make them known, for in distant countries, where one is frequently deprived of all resources, and where one has frequently no other shelter than a miserable hut, simple expedients are in reality the best, as a very trifle may save from destruction rich and valuable collections.

All my researches for insects upon the higher parts of the mountain, where there are neither footpaths nor fallen trees, have been unfruitful, and I have found a considerable quantity at the base, and especially in damp places covered with dead wood, the dried bark of which parts very easily from the trunk. The province of Chantaburi, where I am at present, is one of the most beautiful, the most healthy and at the same time the most thickly populated in the kingdom of Siam. The population of its chief town is only 2500 or 3000, composed of Annamite fishers, Chinese merchants and Siamese cultivators, but the environs contain more than double that population. All the base of Mount Sabab and other neighbouring mountains are inhabited by Chinese, who plant pepper and sugar canes, the Siamese being further off towards the plains, where they have their rice fields. Unhappily, here, as in all other parts of this country, slavery and the heavy taxes which oppress the cultivators prevent all progress as well as the increase of the population. Coffee, which grows admirably here, and is of a superior quality, is only cultivated by the Governor.

How much it is to be wished that this country should one day pass into the hands of a liberal and enlightened nation, such as England, for then it would become the abundant granary of the East. Egypt, formerly so celebrated for the fertility of its soil, the variety of its productions and the overflowing of the Nile, is far from being equal to the kingdom of Siam. The tree which produces the gum gutte is found on Mount Sabab, though not so frequently as in Cambodia. It blossoms during the cold season, in the months of November and December, so that at present I can only send you a few specimens of the wood. The trees which produce the eagle wood are rather common in this and the neighbouring provinces: the Annamites of Chantaburi who pay their tribute, or rather their personal tax, with it, make a secret of the indications by which it is known. The information which I have, however, been able to procure has put me in the way, and having caused several of these trees to be cut down upon the mountain I have made the following remarks. The tree which contains the eagle wood ought to give a hollow sound when struck with the back of the hatchet, because it is only in the cavities it is found. The older the tree is the more it generally contains. In the trunk there is also to be found a few empty knots, from which escapes the smell of the eagle wood, more or less strong, but as to the quality and quantity it depends entirely on the chance one has to fall in with a good tree. I now send you some specimens of this wood, of the stem of the eagle wood, also a quantity of other gums, Indian rubber, gutta percha, &c., found here, and are also very common in the large and mountainous island of of Ko-chang, situated near Thung Tai. Unfortunately on my return from exploring the islands and being at Pak-nam-ven, my servants having lighted a fire to keep off the mosquitoes I had one morning all the skin of my bark consumed, and also my finest specimens of gum, which I had collected in the bamboos. However, it will be difficult even to obtain anything from that island, which is almost a desert, and is the terror of the natives on the coast, on account of the ferocity of the tigers which infest it.

Among the Stieng Savages, Brelum, October 15th, 1859, North Lat. 11° 46′ 30″. Long 103° 3′, East of Paris.—I profit by a favourable opportunity which has just presented itself to write you a few hasty lines, and to give you signs of life: for the last two months I have been among the Stieng savages in the middle of their immense forests, latitude precisely as indicated above, where I have passed the most favourable season for collecting insects and land shells. Notwithstanding the King of Cambodia having given me a letter, in which he gave orders to all chiefs of (Skok Khmer) the Cambodia villages to furnish me with the means of transport for my journey, I have had much trouble to arrive here, as frequently neither chariots nor buffaloes were to be found in the hamlets through which I passed; besides, the Cambodian being the worst of all the species of animals found on the globe, like the ass, the only means of bringing him out of his state of lethargy, bordering on stupidity, is by beating him. This will give you a slight idea of the manner in which I have accomplished my journey, which lasted a whole month, three times as long as I could have made it on foot.

On the 21st of July, after having reached Pinhalu, a village nine miles from the capital, I went down the large branch of the Mekong, as far as Polompa, a commercial city peopled with Chinese, at the conflux of two rivers. I then went up the great Cambodia River; the waters of it were still low, as all through the country the rainy season is more than two months later than usual. The Mekong is covered with islands, many of them eight or nine miles in length and more than a mile in breadth, such is the large and beautiful island of Ko-huten, which I reached in five days; judge then of the width of this river, which I consider to be about three miles. Pelicans are found upon it often in troops of more than fifty together, and especially the sandy parts are covered with an immense number of storks, sea-swallows and other aquatic birds. The general aspect of this mighty river is, however, more gloomy than gay; its water running with the rapidity of a torrent undoubtedly is most imposing, but that is all. Few boats are seen upon its waters, and its shores are nearly desert, the forests being more than a mile distant from them, and long grass or heaps of earth, which undermined by water fall down on the least noise; this is for the most part what is seen or heard.

The Menam is much more animated in its general aspect. The rapids and cataracts commence at about thirty or forty leagues north of Ko-huten, on the confines of Lao, where it is necessary to quit large barges and take canoes, which you are frequently obliged to transport on men's shoulders, as well as the baggage, before getting over those passages. The current of the Mekong is so strong that at certain seasons you can only make about a mile a day, and at times.

the rowers go in the evening to look for the fire where they in the morning had cooked their rice. I sailed up it in a small bark with three rowers, and the current was so strong at the turning of the river that it was almost impossible to proceed; it was necessary to make a thousand efforts and even to hold on by the rushes, so as not to be carried away by the current. Eight days after leaving Pinhalu I arrived at Pempticlan, a large Cambodian village, from where it was necessary to travel by land. There remained one hundred and sixty miles to accomplish in chariots towards the east. I met with a good reception from the mandarins placed by Government over all this part of the country, and on the evening of the following day I was able to set out. The first day the chariots upset, and I found it almost impossible to proceed; we met with fearful bogs, quagmires and marshy ground, but still more terrible, the chariots sunk to the axletrees and the buffaloes to their bellies. The following day, happily, the road became better, but during three weeks we saw nothing but a few poor rice fields near the villages, and we had to continue our way through a marshy plain covered with thick and dark forests, which remind one of the enchanted forests in the description of Tasso, and it seemed almost that from every trunk which was struck, there was about to appear some enchanted being; and it is easy to understand that the imagination of this Pagan people fancied those dens of monstrous and fearful animals to be the dwellings of malevolent spirits: twenty times in an hour the troop of men who—beside the conductors of the chariots—accompanied me, were obliged to raise the large branches and cut down the trunks which obstructed our passage, and at times to make a new passage altogether. Beyond Penhalu the Cambodians were much surprised to see us go amongst the Stiengs, and at the worst time of the year, for there the rainy season had commenced; even those who live nearest them dare not venture to approach them, so that had I not brought from Siam the two domestics which I had in my service, I could not have been able for any money to have found a single individual to follow me; even they felt the greatest repugnance to advance. As at Siam, Cambodia has a terrible reputation of insalubrity, and unhappily for my domestics and for myself, all were attacked with fever in the middle of the forests; and since then I have had instead of their services, two patients to take care of. In passing through a village, peopled two-thirds by a barbarian race of Annamites, I risked being taken by them and finishing my explorations in a dungeon, where I should have found no other insects but lice, so large and fat that they consider them most delightful. Last year the chariots belonging to the French missionaries were completely robbed, and the men who conducted them seized, and with ropes round their necks conducted to Cochin China. I approached them, defying them to attack me, loading all my arms before them; they were enraged in their hearts, but stood in awe; and the two following days, as I expected continually to be seized upon by surprise, I advanced with a pistol in my hand and my finger even upon the trigger; however, a little audaciousness had sufficed to keep them off, as I passed through without being molested. Notwithstanding the fatigue, the heat and the privations unavoidable in such a journey, I arrived safe and sound, for my own part, among the Stiengs, on the 20th August, at a part called Brelum, where I found a station of Catholic missionaries from the Mission of Cochin China, and at some miles from its frontiers. To have proceeded further would have been impossible, as we could not have found the means of transport or provisions at this season of the year: the poor savages have consumed all their rice, and they have nothing to subsist upon but herbs, a little maize, and a little game which they procure in hunting. I accepted then the hospitality which was offered to me by a good missionary in his establishment, which happily was pretty well furnished.

In a week or two the rainy season will have finished and the nights will become cold, so that there will be no insects to be found for several months; I shall then be occupied with birds exclusively. My departure from this will depend upon circumstances; perhaps I shall carry this letter to Panhalu myself; it is also probable that I may be detained some months in this locality, on account of the bad state of the roads and the impossibility of procuring vehicles during the rice harvest. Perhaps you would wish to know what this strange people are—supposed to be living alone on the plains and mountains of Cambodia, which they appear never to have left, and differing totally in manners, language and features, from the Cambodians, Laotians and Annamites,—all I can tell you is that I am led to believe that they are the aborigines of the country, and that they have been chased into these parts by the repeated migrations of the Thibetians, from whom evidently the Siamese descend, as well as also the people I have been speaking of. They appear to have had the same origin, if we may judge from their resemblance to each other, their religion, their character, their manners, &c.

All the country from the eastern side of the mountains of Cochin China to 105° long. and 11° lat. to Lao is inhabited by savage tribes, known by a name ('the inhabitants of the heights'), which signifies they do not become attached to their country, and change their abode frequently. Most of the villagers are in continual hostilities with each other, but they do not attack in troops; they try to take each other by surprise, and the prisoners are sold to the Laotians as slaves; their only weapon is the crossbow, which they use with an extraordinary dexterity, but rarely at a greater distance than twenty feet; they only employ the poisoned arrows for hunting the large animals, such as elephants, rhinoceroses, buffaloes and wild oxen. The smallest wound is sufficient to cause death, and when the poison is fresh it is seldom that the strongest animal can make fifty steps before he falls; they then cut out the wounded part, then slightly roast the animal without skinning or cutting it up, so that it may be the better preserved; then all the village is called by the sound of a trumpet (which is heard at a great distance) to have a share: equality and fraternity in its most perfect state exists in these little communities: and our gentlemen commonists would be surprised to find all their theories put into practice, but engendering nothing but misery.

The strongest European could not use the bow and arrow which the weakest and smallest of the Stiengs string with ease, the effect of habit. Nor are they altogether unacquainted with agriculture; they sow rice, plant gourds, water-melons, bananas and other fruit trees; their rice fields are kept with the greatest care, but most of the hard work is done by the women; during the rainy season the men seldom go out, principally on account of the leeches which swarm in the woods in such a manner as to render them inaccessible; they therefore keep to their fields, where they construct small huts of bamboo, but as soon as their harvest is over and the healthy season returned, they are continually either fishing or hunting; they never go out without their bows and a large blade of a knife with a bamboo handle, a basket on their back and another on their head. They forge nearly all their instruments with a mineral they get from Annam or Cambodia. Though they understand how to make earthern vessels, they generally cook their rice, their herbs, and even their meat in bamboos. Their clothing consists only of a band of cloth about the width of the hand, which, attached as a bandage, conceals more or less their nakedness. It is also the women who weave those kind of scarfs, which are long and sometime pretty. They are very fond of ornaments, and especially the women, who have always their feet, arms and fingers covered with rings made of thick wire, and on their necks strings of glass beads; their ears are pierced with an enormous hole, through which they pass the bone of an animal, which is often more than three inches in circumference. They wear their hair long, the same as the Annamites, and knot it up with a comb made of bamboo; besides this they wear a kind of arrow made of wire, and ornamented with the comb of a pheasant. Their features are good and sometimes regular, and many of them have beards, that is to say, thick moustaches and an imperial: quite alone and independent in the middle of their forests, they acknowledge scarcely any other authority than the chief of the village, whose dignity is generally hereditary.

For the last year or two the King of Cambodia sent at times the Mandarin who is nearest to the Stiengs as far as their first villages, to distribute marks of honour to their chiefs, hoping gradually to bring them under his dominion, and to be able one day to get from them slaves and ivory; he has already a few who pay him a small tribute every three years. His emissaries, however, scarcely dare pass the limits of their kingdoms, so much do they dread the arrows of those savages and the fevers that reign in their forests.

The natural character, however, of the Stieng, is gentle and hospitable, and he is far from possessing the proud and stupid brutality of the Cambodian, or the refined cruelty and corruption of the Annamites; he is a good child of the forest, simple, and even generous. As to his defects, they are those of all the Asiatics,—cunning, an extraordinary ability to dissimulate, and idleness; his passion is hunting, and he leaves most of the hard work to the women. In this they differ also from the Cambodians, that robberies are very rarely committed among them. They believe in a Supreme Being, but they only invoke the malevolent spirit, so that it may leave them in peace. They bury their dead near their dwelling, and cover the tomb with a roof of leaves, so that the soul of the departed may come and repose there, eat the grains of rice, drink water or wine, which they take care to place there frequently in small tubes of bamboo. On the roads formerly frequented by their departed relatives, and in their rice fields, they place similar offerings, which remind one of the custom of the Chinese,—"Come and visit us often, poor soul;" they then say, "here is rice to eat, water to drink, a little earth to repose upon, and arrows for hunting." They do not believe in the transmigration of souls, but they believe that animals have also souls, which live after the death of their bodies, and that their souls continue to wander about in the parts which they frequented during their lives. When they kill an animal they never fail to make a small sacrifice to it, in case its soul should come and torment them; they also ask pardon for having deprived the soul of its body. When it happens to be a large and fearful animal, such as an elephant, the ceremony becomes more imposing; all the village takes part in it, and during several days instruments and songs resound, so as to appease the soul of the majestic animal.

Their superstitions are numerous; the cry of the owl during the night, the sight of a crow when about to set out on a journey, are considered bad omens, and are sufficient to make them change their plans. When they are sick it is the demon they say who torments them, and day and night, without intermission, they make a fearful uproar around the sick man, so as to deliver him from its power; and their noise does not cease until one of them falls down, as if in a swoon, crying out, "I have him! he has passed into me! he is suffocating me!" They then interrogate the newly-possessed as to the remedies which must be used so as to cure the patient, and then what the demon requires or demands to abandon his prey, which is at times an ox, a pig, and, too often, a human being; in the latter case, they without pity seize upon a poor slave, whom they sacrifice to the malevolent spirit. They imagine that all white people inhabit small corners of the earth situated in the middle of the sea, and they are so simple that they frequently ask whether there are women in our country? If you answer them, in jest, "No"; and tell them that when one wishes for offspring you have only to pull out a few hairs, plant them, and by the heat of the sun they grow into little children, they are willing to believe it, and ready to make an experiment unless you undeceive them. What they are most in want of is salt, and this is perhaps the cause of many cutaneous diseases which I remark among them, and this want of salt arises from the fear which the Cambodian merchants have to penetrate into their country.

Besides this, the forests well merit the reputation they have of being insalubrious, and the natives themselves are tormented with fevers. The two French missionaries, who, like lost sentinels, occupy this solitary post, have suffered much from various diseases. Out of fifteen Annamites who accompanied them here, two-thirds are continually travelling about. My own health, thank God, is excellent, notwithstanding hard work and long journeys, and the hatchet is at work as much as the net. We are here surrounded by tigers, rhinoceroses, buffaloes and wild oxen. However, those terrible neighbours cause more fear than hurt; if they come out of their impenetrable dens during the night, the presence of man at sunrise makes them quickly return to their retreats, and to obtain them it is necessary to pursue them a long time, and to wait near the ponds and marshes where they go to drink.

The fallow deer differ from those of Siam, and most resemble those of Cochin China. I have found many good and rare things here, but it is not unlikely that later I may find the same in Siam. The bamboo wood, which I had neglected for a long time, furnishes me now with an abundant harvest,—magnificent longicorns, which I much wanted. From one day to another one may prepare a quantity; it is sufficient for this to cut down some of those trees near the paths, leave them to suspend obliquely and attached to the summit of a neighbouring tree; at the hottest part of the following day you are sure, on visiting them, to find those beautiful insects near the knots, or at work perforating the trunks, so as to make incisions.

What will also cause you to rejoice, my dear Mr. Stevens, is the beautiful collection of land shells, and of which I am endeavouring to make ample provision. When, and above all how, am I to return to Cambodia, and from thence to Siam? I dare not think of the difficulties which await me with this wretched people, the Cambodians, in transporting my treasures; the dreadful shakings which my boxes of insects will have is heart-breaking, and I hope you will join your ardent wishes to mine that the beautiful collection which I already have, and which I shall, I hope, enrich still more, may be received by you in a perfect state, and at least that a part may be saved, so as to enrich and be of some service to Natural History. "Poor soldier of the Science, they are thy trophies, and when lost, it is so much the more painful, having gained them by the sweat of thy brow." Should the war with Annam cease, I might visit a corner of that country and return by water to Pinhalu. I do not, however, count upon that, but in short those who live will see. In recommending myself to your kind remembrances, I bid you good-bye, and wish you the same health which I enjoy in the forests of the Stiengs: may God preserve me from their arrows.

H. Mouhot.

PS.— 20th December, 1859. — I arrived last evening at Pinhalu in perfect health, and am just setting off to the North to visit the famous ruins of Onkor, and to return to Bankok by Korat. I have scarcely time to write a few lines to you and to my family, so that you may be at ease on my account, and to inform you at the same time of a collection which I am sending off by Kampot, Singapore. As you will see, I have passed among the Stiengs sufficient time to make a fine collection, and I have not spared myself any trouble to attain that end. At the same time I am only half satisfied in some respects; birds are so rare that I have only procured a few; in the next place, the terrible shaking which they have had has much injured them. As to my insects and my most precious shells, I have been obliged to have them carried by men as far as this, and I am sending to Kampot in the same manner; it is expensive, but at the same time the only way to preserve them from being completely destroyed.

I suspect that a packet of letters for me must have been lost, as I have not yet heard of the arrival of any of the collections sent; you may imagine how painful that is. On my arrival at Bankok I will send you some good maps of this almost unknown country, and more details than I can give you at present of the divers savage tribes by which it is inhabited. I am nearly convinced that much time is lost in working very hard here, as the country is poor and very difficult to explore, but that will not discourage me, and I hope during the course of next year I shall be able to send you some collections which will cause you pleasure when you receive them.—H. M.

On the Habits of the Aye-Aye of Madagascar.

By Humphrey Sandwith, Esq.*

Some time ago Professor Owen wrote to me, begging me to procure him, if possible, a specimen of this animal, as the British Museum possessed neither its skin nor skeleton. Although the museum of Port Louis is small and insignificant in the number of its specimens, it is in this respect richer than that of Great Britain with its immense collection of curiosities, since it possesses a stuffed aye-aye, which does honour to the stuffer, both on account of its natural attitude and the excellent manner in which it is preserved.

Now, when we examine this little creature, we naturally ask, whereabouts in the animal kingdom it ought to be placed. Those who are unacquainted with Natural History pronounce it to be a lemur, and really with great reason, although Cuvier has placed it more correctly in the order of rodents, and associated it with the squirrel and rat. There are, without doubt, excellent reasons for associating it with the lemurs, because, in the first place, it comes from the only country where the lemurs are found; and secondly, because no rodent has the rotating power in the bones of the fore-arm, neither can it, like man, move its members separately and use them as prehensile instruments, a peculiarity which we observe among the Quadrumana; and certainly no rodent possesses opposable thumbs on all the four feet: this character proves that the aye-aye has some affinity with the monkey and lemur, and that it is capable of climbing trees. From what I have just said it might be placed in the same family as the lemur, especially as it comes from Madagascar, but we shall probably change our opinion on examining the mouth. I would also wish you to observe that at first sight it resembles the lemur equally in its movements and the form of its body as in its tail and feet; however, if it is attentively examined, you will see that a great difference exists between the feet of the aye-aye and those of the lemur. In the lemur the finger which may be considered the index of that animal is provided with a claw, while the following fingers have flat nails, like those of a human being or a monkey; but you see in the aye-aye very curious claws, which cannot be compared with those of any other animal. They agree exactly with the habits of the aye-aye, just as those of the lemur are fitted for the habits of that animal; but they are very different. This is another proof that Nature has various ways of attaining the same results. The fur of this animal is also less woolly than that of the lemur, but it is in approaching the head that we perceive a great difference between these two animals. First let me call your attention to the form of the head. At first sight it appears to be that of a nocturnal animal; its large and naked ears, much resembling those of a bat, are so constructed as to enable the animal to detect the slightest noise in the silence of the night. I must confess that I was a little puzzled on this point, this animal not being carnivorous like the cat, which is obliged to listen for the footsteps of its prey; it is, on the contrary, frugivorous, but not exclusively so, otherwise its teeth would resemble those of the monkey,—at least it would have no occasion for the large incisors. Observe that its teeth are so formed as to enable it to gnaw the hardest wood. They have no enamel, except in front, so that the inner surface at the extremity of the tooth is more quickly worn than the outer, and gives them the form of a chisel. The roots of these incisor teeth are probably persistent, like those of the other rodents, so that the teeth grow at the base exactly in proportion as they are worn away at the extremities. The lower jaw, like that of the other rodents, moves evidently by means of a longitudinal condyle, so as to prevent any horizontal movement from back to front, and *vice versâ.*

---

* Translated from the 'Proceedings of the Zoological Society.

Here then is a powerful rodent possessing a very delicate sense of hearing (a combination which induces me to believe the account of the inhabitants of Madagascar, who assert that this animal listens to the noise of the worm in the interior of the tree, and that it then gnaws the wood until it has reached the worm, which it extracts with its long and slender finger), a description applicable to many other rodents. These animals, especially the mouse, the hare, the rabbit, and a still larger animal, the chinchilla of South America, besides having strong teeth designed for gnawing, are gifted with a very delicate sense of hearing. Living in constant fear of the larger Carnivora this delicate hearing is absolutely necessary to warn them of approaching danger; while the Cheiromys or aye-aye, living in trees in a country where there are no Carnivora of a magnitude to endanger its safety, has nothing to fear from the attacks of enemies, so that its acute sense of hearing must be provided rather as a means of attack than of defence.

I had arrived at this point of my observations; and, judging more from the supposed food of the aye-aye and from his general conformation than from his habits or his teeth, I had fed him with bananas and dates, thinking, of course, that as he was adapted for living on trees and had no canine teeth, far from being carnivorous he must be frugivorous and insectivorous. I had him one evening in my room, and observed all his movements. It was very curious to see him climbing on the chairs and tables, and carefully observing the wood of each piece of furniture. While he examined the partition I heard a continued slight noise, which was quickly repeated, and I was some time in discovering the cause. At last I remarked that from time to time this little animal gave rapid, slight blows, which produced a vibrating sound, with the second finger, that thin thread-like member which resembles a bent wire, and by means of which it is said he draws the worm from the trees: while he thus struck the wood he seemed to listen attentively. Once as he crossed my room, after having struck the floor he began to tear the matting with his teeth. As I was not disposed to allow him to destroy anything I was obliged to drive him away, but I felt convinced that he did really eat the worms which he found in wood, as it was related. Thus we have now among animals what the woodpecker is among birds, for although the latter is insectivorous it also lives on fruits and even on eggs.

Another very remarkable peculiarity of this little creature is his manner of drinking. Having placed a finger-glass of water before him I observed his movements; he approached the vase, extended his arm, and having plunged his wire-like finger into it he then passed it obliquely into his mouth; he repeated this movement with such rapidity that the water seemed to run from the vase into his mouth. It appears to me that this singular mode of drinking is the most convenient to him for extracting the water from the cavities of the trees, the natural reservoirs to which he resorts for quenching his thirst.

I have followed Cuvier's system, and have placed this animal among the rodents; still, although this classification is as correct as any other we may be disposed to adopt, it appears to be inexact. Food is doubtless an important characteristic, many even say that it is the most important; certainly the teeth are the most necessary organs for eating, yet, if we take them as a means of classification, it must be acknowledged that we meet with strange contrasts; in a word, is it possible to compare for an instant this animal with the rat, either in its habits, its form or its general aspect? How different is the tail from the scaly member of the beaver, and what a striking contrast between the aquatic habits of the one and the climbing propensities of the other! Is it then consistent, because these two animals gnaw wood and have file-like teeth, that they should be ranked in the same class? Far be it from me to criticize Cuvier, or to dispute anything which that giant in Natural Science has advanced; I merely wish to point out the impossibility of arriving at a perfect classification. As for myself, if I could set aside the shackles of Science and succeed in forgetting all that I have learned, I should not hesitate for a moment to call this animal a new species of lemur, and for this simple reason,—that although it resembles the rat and the beaver in one respect, namely, the form of the teeth, it resembles the lemur in all other respects; first, in its general appearance; next, in its long thin body, in its habit of climbing trees, in the form of its claws, and especially in its long bushy tail. It has many peculiarities which we do not find in the lemur, but which are met with doubtless in the other animals I have previously mentioned: its teeth, for example, resemble those of the rodent; its ears and eyes those of the bat, because, being a nocturnal animal, it is necessary that all the rays of light should be concentrated in the pupil, which is as large as that of a cat.

Having heard that the natives of Madagascar affirm that the aye-aye eats xylophagous larvæ, and that it uses its wire-like finger to extract them from the wood, I did not implicitly believe the story, knowing what absurd tales are sometimes related of birds and beasts. The peasants of England, for instance, firmly believe that the hedgehog sucks the milk of the cows, and that the goatsucker or flying toad that of the goats, but, although we ought to accept these popular ideas *cum grano salis*, it is quite worth while to inquire whether the habits which are attributed to the aye-aye are in harmony with its conformation; besides, I did not see why it should not eat the worms in the trees, though I could not understand why it should make use of the second finger to draw them from their holes, not believing that it could either pierce or extract the worm. However, I soon had an opportunity of proving the truth of this assertion: having found some branches which had been eaten by worms I placed them in its cage, and observed its movements. I soon saw it climb on one of the branches and examine it attentively; it then inclined its ears forward, and applying its nose to the bark he struck it rapidly with his curious second finger, as the woodpecker strikes the tree, though with much less noise. From time to time he introduced the tip of the wire-like finger into the worm holes, as a surgeon would his probe. At length he came to a part of the branch which evidently afforded an interesting sound, for he began tearing it with his strong teeth. He soon tore off the bark, cut away the wood, and exposed the hole of the worm, which he delicately extracted with his wire-like finger and conveyed up to his mouth. I observed his movements with much interest, and was struck with the wonderful manner in which this animal is provided with the means adapted to his habits; first, the fine sense of hearing, which enables him to distinguish the different sounds produced in the wood by his light tapping; then the delicate smell which doubtless assists him in his researches; his secure step over the flexible branches, to which he clings by means of his four hands; his strong gnawing teeth, by which he tears the hardest wood; and, lastly, the curious little finger, which he uses in turn for so many purposes.

The Hybrid between Horse and Deer.— Have you or any competent zoologist examined the animal now shown in London, purporting to "combine the species of the deer and the horse?" Is it the same animal that was alleged to have been found in the New Forest a few years ago, and that was figured in the 'Illustrated London News.'—*George Guyon; Ventnor, Isle of Wight, April* 4, 1860.

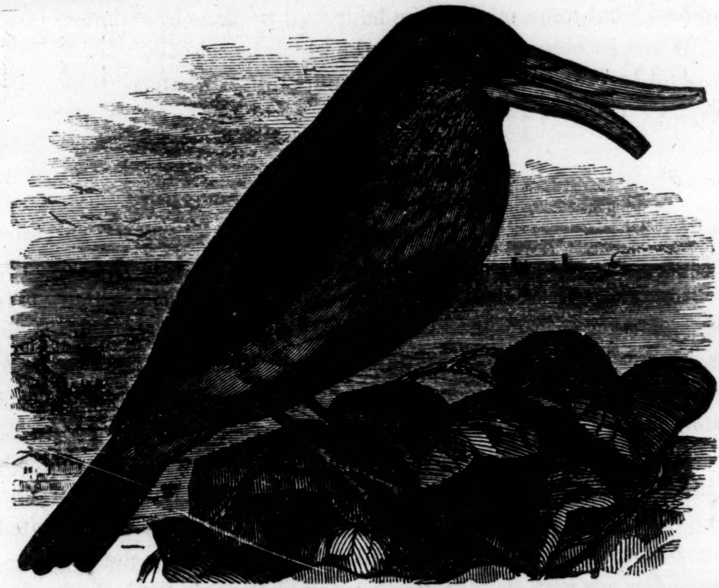
Birth of three Bears at Clifton Zoological Gardens.—A very interesting and curious addition has lately been made to the animals in the gardens of the Society, by the birth of three young bears. Not that there is anything unusual in the circumstance of bears of the same species breeding in confinement. Those kept in the fosse at Berne did so often, and instances in this country are common enough, but what appears so strange in the present case is the fact that the parents are of entirely different species, the male being the American black bear (*Ursus americanus*) and the female the brown bear of Europe (*Ursus arctos*), there being also other circumstances known to naturalists which make the present case still more strange and uncommon. Green, the head-keeper, with his long-life experience of animals in menageries, has never known or heard of a case of the kind occurring elsewhere. It will be curious to see what the hybrid little beasts will be like when full grown. At present two seem to take after the mother, and the third has the black coat of the sire; but, according to Green, it is impossible to say what colour they may take hereafter. The cubs at their birth, in January last, were no larger than pointer puppies, and even now at six weeks' old, are not so large as a Newfoundland puppy of the same age. They are like almost all young things, pretty and playful, and full of uncouth little antics; they are, too, by no means shy, and will follow Green's little boy like dogs. Madame Bruin and her infant family will doubtless be a great attraction to the young people during the coming summer.—*The 'Western Daily Press,' March* 29, 1860.

Wild Fowl in the Ornamental Waters of London.—Mr. Hussey is in error in supposing that no real wild fowl visit the ornamental water in the London parks. Some little time since I resided in London several years during the winter and spring, and have not unfrequently seen a small flock of perfectly wild pochards (*Anas ferina*) swim on the water in the Regent's Park; they sometimes remained for at least a fortnight: when they first arrived they were very wild, but soon got quite tame, and would occasionally take bread with the other ducks. One of the park-keepers told me that small flocks of wild fowl passing over frequently descended, and remained for a time on the water. A male wild wigeon (*Anas Penelope*, Linn.) for several successive seasons remained on the water in the Regent's Park, and paired with a female of the common wild duck (*Anas Boschas*, Linn.). When I lived in London some of their progeny used to fly backwards and forwards from the lake in the Park to the pond in the Botanic Gardens.—*H. Harpur Crewe; Wickham Market, Suffolk, March* 30, 1860.

What is the use of the Oil-gland at the base of the Tail of Birds?—In his 'Essays on Natural History' (pp. 60—64), Mr. Waterton is very severe on those who maintain that birds "use oil from glands for the purpose of lubricating the surface of their plumage," particularly objecting the impossibility of doing this to the head and neck. I possess no means of referring to the 'Essays,' but will give the substance of notes made (as specially therein), just after I had read the work, in August, 1841. It would be somewhat difficult for any one to prove the actual fact that a bird "procures oil from the gland with its bill," &c. (p. 61), since that perhaps could not be decided even by shooting the bird in the very act of pressing the gland; but it is surprising that so close an observer of the actions and habits of animals should not have noticed proceedings which, at the very least, strongly countenance the opinion Mr. Waterton so positively impugns. Few persons comparatively enjoy the opportunity of making very near and accurate remarks upon birds in a state of nature, and I profess to have seen only what almost any one else may see; still I must assert that, long before I became acquainted with Waterton's 'Essays,' I was fully convinced of the fact which he there denies. Domestic ducks, when kept near a house and treated kindly, will fearlessly perform their toilet within a very short distance of any one they are familiar with. Thus I have often watched ducks preening themselves with perfect composure only three or four yards, perhaps less, from me, when I could distinctly perceive that they inserted the bill among the feathers, with a motion precisely such as if gently compressing the gland upon the rump in order to squeeze out some of the oil, after which they resumed the operation of dressing themselves. This seemingly lubricating process was often repeated, and the effect was imparted to the head and neck (which Mr. Waterton considers a bird cannot reach for this purpose) by a very simple but methodical manœuvre. The beak, having been directed to the oil-gland, is next used —as if to discharge its contents—upon the feathers of the back, when the head and neck are thoroughly rubbed over the spot, which the length and flexibility of the neck enable the bird to do, so as completely to apply it to every part except the forehead, the plumage of which I remember noticing in the duck to throw off water less than that of any other part. The conclusion drawn from such observations was fully confirmed by others upon a caged canary. These notes, though penned in 1841, were indited from memory, it is true, but I feel quite confident as to the general accuracy of my recollections. I do not, however, desire dogmatically to affirm the certainty of my inferences, particularly in opposition to a naturalist of such skill and varied experience as Mr. Waterton; I would only invite readers of the 'Zoologist' to employ their opportunities in endeavouring, apart from all theory, either to establish or to refute the opinion I have expressed. I have taken for granted that the gland upon the upper side of the rump of a bird contains an oily matter, because that fact will be evident enough to any one who only opens the gland of the fowl he has been eating. To account for only now producing reflections made nearly nineteen years ago, I can only say that the 'Zoologist' did not then exist, that the subject was not always borne in mind, and that, when it did recur, I hesitated whether or not to offer my notes for publication.—*Arthur Hussey; Rottingdean, April* 17, 1860.

Occurrence of the Wood Warbler (Sylvia sibilatrix) *near Penzance, and Note on the Migratory Warblers.*—After a careful attention to the different migratory warblers affecting this neighbourhood for the last twenty-five years, I have during the past week, for the first time, discovered the wood warbler near this place, and in full song, that is, uttering its thrilling sibilous song, and at intervals those very peculiar mournful chirps entirely different from its other song, and which might easily be attributable to another bird by those unacquainted with this bird. At present, we are unacquainted with the nightingale, lesser whitethroat, garden warbler, reed warbler and common redstart; it is, however, by no means improbable that in the course of time I may have to record the appearance of these birds, for by some curious and inexplicable law many birds unknown in a district make their appearance all at once, and continue ever afterwards to affect the localities. In illustration of this I may mention the blackcap warbler and the common willow wren, species unknown here thirty years ago, and now found in most of our groves and plantations. I should mention that the above-mentioned birds, except the nightingale, have been captured at Scilly and in this neighbourhood during the autumnal migration, apparently *in transitu*, especially after strong opposing winds, and I may include also the pied flycatcher, but they have not appeared with us as summer visitors.—*Edward Hearle Rodd; Penzance, May* 10, 1860.

Remarkable Monstrosity in the Beak of a Sparrow.—The engraving below represents a sparrow caught in King Street, Brighton, in June, 1857; it was in a state of perfect health and very fat, and was brought to Mr. Swaysland, the bird-stuffer, who had several times observed it flying in the neighbourhood, from a stable yard, and with the appearance of an ear of wheat in its beak. I am indebted to Mr. Bond for the loan of the specimen and the opportunity of having the very characteristic drawing, made by Mr. Willis. The limits of the proper beak are very clearly defined, and it is difficult to conceive how the supplementary portion of the beak could have been formed while the true beak was in constant use as a pecking instrument.—***Edward Newman.***



The Sea Serpent.—(See 'Liverpool Daily Post,' quoted Zool. 6985).

I've a story to tell—I don't say that it's true—
But just as I heard it I tell it to you.
A ship there was sailing upon the blue sea
With her canvas all set, when the captain, said he—
"I feel that the vessel is all of a tremble,
A sort of sea earthquake it seems to resemble;
Send forward the mate to see what is the matter."
When lo! what he saw would have made your teeth chatter,
An enormous big snake rising out of the sea,
Some three hundred feet long it might possibly be,
And in bulk it might equal a "wide crinoline"
(At least seven yards round that description must mean).
With jaws eight feet long, and with eyes fiercely glaring,
A horn and a mane, he looked horribly daring,

While the bowsprit he shook in his terrible mouth.
('Twas in Latitude East and in Longitude South,*
The ship making six knots—leaving foam in her wake,
Yet she stopped at the touch of this wonderful snake);
And the jibboom and bowsprit were snapped like a straw;
But his strength was outdone by his marvellous maw;
For he swallowed the stay-sail and also the jib
Like a boy gulping oysters—they went down so glib.
With this stay to his stomach he turned him about,
And gave with his tail such a vigorous flout
That some timbers to atoms were crushed by the blow,
And what more might have happened we none of us know,
When an object appeared for the which he set sail,
And both object and story were much like a whale.

—*George Guyon; Ventnor, Isle of Wight.*

Note on the Piscivorous Propensities of the Common Carp.—A specimen of the common carp, between five and six inches in length, was lately observed to devour three small minnows, each of about an inch and a half in length, which were confined in the same aquarium with him. One of these the carp seized immediately the minnow was placed in the aquarium, and swallowed it whole, head foremost. This habit of the carp is new to me, and may perhaps be worth recording.—*J. H. Gurney; Catton, Norfolk, May* 7, 1860.

Note on the Syngnathidæ or Pipe Fish Family.—The Syngnathidæ are most remarkable in their structural characters from all other fishes, forming an order, Lophobranchii, from the singular character of the gills, which are not pectinated, nor in equal laminæ, but disposed in pairs, in small tufts, a peculiarity not existing in other fishes. Their bodies are very slender, much tapering towards the tail, almost destitute of flesh, and covered with plated scales; they have a natatory bladder, and a tubular muzzle or snout, formed like that of Fistularidæ. In the British seas and in the coasts of Ireland we have six species:— two marsupial fish, having true caudal fins, Syngnathus Acus and S. Typhle; four ophidial, which contain S. æquoreus and S. anguineus, having each a rudimentary caudal fin, and S. Ophidion and S. lumbriciformis, in which there is no caudal fin, the tail terminating in a fine point. All these species are exceedingly common in the harbours and estuaries of the south-west coast of Ireland; and another of the Syngnathidæ, Hippocampus brevirostris, has been taken in Smerwick harbour, coast of Kerry. Of the marsupial species, S. Acus and S. Typhle are plentiful in Dingle Harbour in the spring and early months of summer, frequenting stony ground abounding with Algæ, in depths of four to six feet, where the development and protection of their ova can be accomplished. I have frequently taken both species in states of spawning, the S. Typhle with the young partially extricated from the ova, freed from the subcaudal pouch of the male, and actively swimming, whilst other portions of the ova in the pouch were not matured. These two species having a true caudal fin exercise it as a propeller, similar to other fishes, not being prehensile as in the other sections. The manner of passing the ova to the marsupial bag of the male fish is singular. In shoal water or a low tide these fish may sometimes be seen in pairs, side by side, apparently stationary on some rocky stone. At this time the ova—the capsules but imperfectly matured—are liberated from the female, and received into the abdominal sac of the male, the male fish having the power of expanding the lappings of the sac, and attaching the ova by a highly viscid or glutinous secretion. In time, as the process of maturation advances, the capsules of the ova enlarge, forming hemispherical depressions in the sac, and eventually the pouch is forced open by the full development of the ova and extrication of the young. In the other species, the genus Nerophis of the last edition of Yarrell and the Ancestra of other authors, the male fish are destitute of the abdominal or caudal pouch, and, unlike the last, have scarcely any caudal fin, their long tapering tail enabling them to twine around and cling to the stems of the larger Algæ. In Dingle Harbour the S. æquoreus may be met with very abundantly in the summer months, spawning in the months of June and July. This is the largest and most beautiful of the species, the girth of the body being oval, of a long tapering form to the tail, the colour of a beautiful fawn tinged with orange, and marked with numerous pale yellow rings. The irides are dark, tinged with yellow. In the female fish the abdomen is keeled, in that of the male depressed. A similar process as to the transfer of the ova takes place in the fish as described in the last, with the exception that the males have no abdominal sac to enclose the ova. These fish, under favourable opportunities of calmness and of tides, may be seen side by side clinging with their tails to the tufts of Zostera marina, in which position the male is enabled to attach to the abdomen the ova, by the same influence of viscid secretion alluded to in the marsupial species. This kind of depression in the abdomen of the male is clearly shown in the specimens of S. lumbriciformis, and in which the ova, attached in three rows, is seen. The S. anguineus and S. Ophidion are similar in habit to S. æquoreus, frequenting the same localities in the spawning seasons, and agreeing in other characters and peculiarities, with exception that the larger species are sometimes found in very deep water, at periods when not spawning. The S. lumbriciformis is more frequent in rocky pools under stones, and is the smallest of British pipe fishes. It is extensively distributed round our coasts, and is remarkable for its beautiful markings, especially about the head, of wavy bars, and with white spots along the length of its body. The irides are reddish. It spawns and perfects its young in July. I regret that I did not obtain the recent specimens, to have examined the interesting novelty, certainly first detected and described by Dr. Corrigan, of the manner in which the fish in feeding exercises a power for the inflating of the pouch or gullet, and the expansion of the jaw and mouth. I was aware of the singular manner of the distending of the throat and mouth of the dory (*Zeus Faber*) in receiving its food, and of singular peculiarities in Centriscus and in the Capros Aper, but the power in the Syngnathus appears altogether new, and seems analogous to the peculiarity in the vesicular inflation exercised by the hyoid bone in the howling monkeys, which communicates with the larynx, and produces the sound which gives the appellation to the animal. It is quite obvious how necessary are practical investigations in the living state to arrive at any accuracy in the characteristic habits of animals, and hence have resulted the observations of Dr. Corrigan. I should have mentioned that I have noticed S. æquoreus greedily stripping the stems of Zostera marina of the young of Anthea Cereus, which were attached in a semiglutinous state. —*William Andrews, Dublin, May* 1, 1860.

---

* "Latitude 12° 7″ East and Longitude 93° 52″ South."
This is somewhat obscure, but I think, on the whole,
It occurred t'other side of the Antarctic pole.

A Day among the Cryptochitons.—The gale is over. I land on a warm calm day in the bight of the bay, and the contrast between the clear sunshine and smiling aspect of the green shore and the late raging sea and driving spray is very grateful. The sandpipers are quietly busy probing for worms in the saturated spongy soil; one very pretty species, with broad webs to his feet, is hovering about the surf chasing flies, and even swimming leisurely about in the water; the cormorants are dressing their coarse plumage on the rocks; the black-tailed gulls are sporting over the now tranquil sea; and the inland pond, where the water-fowl used to hide, is twice its original size, so that the rushes no longer conceal the timid wigeon ducks and teal. The little streams are swollen into small torrents; the shingle is tossed up upon the grassy plain; the rushes are swept over and torn up by the roots; the outline of the beech is even altered, and, to show the force of the wind and the violence of the sea, thousands of large mussels in bunches and clusters have been wrenched from their anchorage on the rocks, and thrown up high and dry upon the strand. Crossing a narrow promontory, I descend the cliffs on the other side and reach the seaward shore. I find myself in a small bay,—high, jagged limestone pinnacles and huge vertical-seamed cliffs hedging me in and bounding the view on either side, and in front the open treacherous main. The first objects I notice are prodigious masses of tangle, or Laminaria, thrown up in heaps, and hundreds of the large tunicated curious Cryptochiton Stelleri, detached by the gale from the off-lying submerged rocks, and cast, like shipwrecked sailors, on the shore; dashed against the cliffs and ground by rolling boulders, their internal valves are mostly crushed, and here and there their mangled bodies are found, having been carried to the tops of rounded stones, and their bones picked clean by sea-birds. I walk, solitary and musing, up and down the bay, throwing mutilated Chitons by dozens into the sea, and am rewarded now and then by finding one tolerably perfect. Several specimens of the large Octopus—possibly the rather apochryphal O. chinensis—are cast ashore, and afford me an opportunity of securing the horny mandibles, the rudimentary skull, and some of the suckers from the arms. One I measure is six feet from the tip of one arm to the tip of the opposite arm. The large eyes are covered with the skin, with the exception of a very small round aperture; the body is black-brown and minutely granular. Large skate, rock-cod and other fish have shared the untimely fate of the cuttles, and are lying dead and bruised among the stones, and fragments of the giant Lithodes (like the one I lately sent to the British Museum) strew the narrow strips of sand. It was an impressive scene, and remains indelibly stamped upon my memory.—*Arthur Adams; St. Vladimir Bay, Manchuria, September* 12, 1859.

Crustacea casting off their Legs.—Is there any reason known for the habit that hermit crabs so frequently indulge in of casting away their limbs? It is a popular belief among fishermen that lobsters throw off their claws from the fright occasioned by a thunderstorm or the firing of heavy guns, but the hermit crabs part with their members without any apparent cause of alarm, and sometimes continue to do so for three or four days. A few weeks ago I noticed a small specimen had thrown off both the large claws; it of course remained in that condition many days, during which it took the food offered it, but with difficulty, from the want of the usual implements to convey it to the mouth. A few days ago it cast its shell, and is now again furnished with claws. The following note on the same subject was made more than a year ago. In the month of February a soldier crab, which had not been very long captured, cast away one or two of its legs without any apparent cause; in a day or two after a few more were discarded, together with the bigger claw, and after a similar interval the remaining limbs followed. The legless crustacean then left its shell and rolled helplessly about the dish. I pushed the shell to it, but could not get it to re-enter; it did not seem to have the inclination, and without assistance certainly not the power, as it lay on its back twiddling its feelers as its only amusement. In two or three days it seemed to have changed its mind, and on being helped to its shell took to it readily, and remained therein for ten days or a fortnight, when all further observation was ended by the dish being too long exposed to the sun, and the constitution that cared nought for the loss of arms and legs succumbed to the want of a parasol. The spawn was deposited at the same time that this specimen parted with its limbs, but no connection may exist between the two actions.—*George Guyon; Ventnor, Isle of Wight, May* 9, 1860.

Situation of Pyrgoma.—At Zool. 6994, as elsewhere, I find Pyrgoma spoken of as seated on the lip or "margin of the corallum of certain Caryophyllaceæ." A specimen of Caryophyllia Smithii now in my possession has two Pyrgomæ situated on the same fragment of rock, close to the base of the Madrepore.—*Id.*

A Glimpse of Mull and its Fauna. By ALEXANDER SOMERVILLE, Esq.

LAST summer, early in June, we enjoyed a pleasant excursion to the Highlands of Scotland. A notice of some entomological observations made by us on our journey from Glasgow to Oban, appeared in the 'Intelligencer' of September. In the present paper we propose to give a short account of our visit to the island of Mull.

After spending about ten days in the neighbourhood of Oban we started, taking the road leading to the pretty Sound of Kerrera. When we had proceeded a little way, we followed the path which runs along the cliffs overhanging the shore, and had the pleasure of seeing the little speckled Ennychia octomaculalis "spinning along" as Mr. Birchall describes it at Killarney. Melitæa Artemis was extremely abundant; we came on a female carelessly depositing eggs among the short grass on Tormentilla stalks. Zygæna Flipendulæ was booming along with its heavy flight in the bright sunshine. We were unfortunately too soon for Zygæna Minos.

The next object of attention was a pool, the surface of which was overspread with a species of Potamogeton. Here, after a few skims with the bag net, we succeeded in taking a number of Donacia cincta.

Time, however, did not permit of a lengthened stay; we had much before us; moreover, the uncertainties of the future began to cast their shadows on us, for as to our resting-place for the night all was obscure, save that our dormitory was to be somewhere on

> "Mull's mountain shores."

On our way to the small stone pier we picked up on the shore several snow-white Pecten niveus. This bivalve may be had, although somewhat sparingly, in the neighbourhood of Oban, at low tide. Its range does not appear to extend much further south than Oban; we have never observed it in the Firth of Clyde, although the coasts of that beautiful estuary have been frequently and carefully searched, and though the dredge has been used in deep water.

After a few minutes spent in crossing the narrow sound we were on Kerrera. This isle is interesting as the scene of the death of Alexander II., King of Scotland, when on an expedition against the Western Isles, then under the dominion of Norway. We took the road which leads to the western shore of the isle. On our way we found Lycæna Alsus in profusion in several spots. This species seems to be somewhat local in the west of Scotland, but is not rare in the localities where it occurs. Here also appeared again our old friend Macroglossa bombyliformis darting along the heathy hillsides, but the specimens were very much worn, and were not to be compared with the handsome and freshly-emerged ones which we had taken behind Oban.

What a view burst on us as we reached the highest part of the road! On the east the two-peaked "Cruachan Ben," whose lofty summits we had so lately scaled, rose majestically, while "Jura's rugged coast," "Mull's dark headlands" and "Morven's shore" lay to the west. Northward the green isle of Lismore, with its picturesque lighthouse, filled the eye. We were soon on the beach, where the ferry boat for Mull awaited us. The day was splendid, and the air so still that our two pilots waved the use of the sail and rowed us across the channel—six miles in an open boat. We had Her Majesty's mail bag for our fellow passenger. The sea was covered with guillemots, puffins and sea-fowl of every tribe, which, as we approached them, rose in flocks and sped along in single file at no paltry rate, in some cases not six inches from the surface of the water.

On landing we took the road south and came to a large peat moss. Here we found Campylus linearis sparingly, Melanippe hastaria in abundance, also Ennychia octomaculalis again. Nemeophila Plantaginis was careering madly about, contrasting strangely in its flight with the slow zigzag movements of Chortobius Davus, which delights to dance up and down among the heads of the cotton-grass.

We soon reached the mouth of Loch Spelvie. The problem, however, which had to be solved was—Given, Loch Spelvie with a tide running at six miles an hour, how to cross it. The practical solution proved rather a difficult affair. There was no one of course on our side of the Loch, and it was only after the most protracted "singing out" and shouting that we gained the attention of the gentlemen of the opposition.

For the friends of Crustacea we may mention that several large Maia Squinado were lying among the stern-sheets of the boat.

The next and last part of the day's programme was a walk of four miles along the shores of the peaceful Loch, at the head of which we were told there was a hospitable farm-house. This domicile we reached some time after the sun had set behind the purple-tinged hills of the west.

Next morning we were early astir, and after a breakfast of the homeliest character prepared ourselves for a hunt among the heights. The grand object of the day's enterprise, and that which we made up our minds, by hook or by crook, to attain, was the capture of Dytiscus lapponicus, a species which but a year or two ago was pronounced by Mr. Clark to be new to Britain. The morning was exquisite; we were soon clambering over rocks and heath. We came upon several specimens of Carabus glabratus, one devouring the dead pupa of a dragon-fly. Carabus nitens also gladdened our eyes. Every now and then Bombyx Callunæ went tearing past as if on some behest of weal or woe.

Reaching an eminence we descried a deep mountain tarn at some distance; thither we betook ourselves with all speed. How Dr. Hagen would have revelled in the multitudes of Phryganidæ which tumbled about everywhere near the margin of the Loch. We took a newly-emerged specimen of Anax formosus, which we have identified from the description of the 'Annual' for 1857. In the Loch itself Hydroporus halensis (*Fabr.*), H. erythrocephalus, Agabus arcticus and Gyrinus minutus were not rare. Though these species were very good we sighed after something better; but our wish was not to be gratified for several hours. After visiting many Lochs we came to one which looked likely to contain something good. We proceeded in different directions, and began to walk round the edge. At last—"Ah!—there is something large coming to the surface to breathe—dive—up with the net—he is in—lapponicus for ever!" We need not say that what we had taken in no way cooled our ardour; our search became more exciting, and our labours were not unrewarded, for before leaving the high ground we had the satisfaction of bagging a somewhat creditable number.

On our way down we came on some patches of birch wood in which Melanippe hastaria was actually in profusion, and as the light breeze swept past there was frequently a perfect swarm of them on the lee side of the tree. We noticed that they were generally more numerous round the mountain ash than the birch.

Returning to our Highland shieling we sallied out in the afternoon to take a survey of the low grounds. We came to a loch, which, in some places was margined with tall marsh grasses. There several species of Donacia were luxuriating in the axils of the stems; D. Menyanthidis, D. Proteus, and another which we had the gratification subsequently to find proved to be a species new to Britain, namely, D. obscura of Gyllenhal, not Stephens. By sweeping in the water under the grass-stems Orectochilus villosus came up in the net.

As an illustration of the fact that science and the business of common life go hand in hand, we may adduce the example of our having breakfast next morning much improved by a dish of trout caught in our Coleoptera net.

Having to cross the island to catch—not a floating Dytiscus lapponicus—but the steamer, we strapped on our knapsacks and started. The road at first lay through a birch wood; here we took Leptura quadrifasciata flying along in the sunshine. Our next business was the ascent of a lofty height, the view from whose summit we cannot stay to depict. It embraced a large portion of the Highlands of Scotland and of the Western Islands from Arran to Skye, including

"Ulva dark, and Colonsay
And all the group of islets gay
That guard famed Staffa round."

But of the hill itself and of the landscape immediately connected with it no better description can be afforded than that given of another by one of our Scottish minstrels.

"Here—above, around, below,
On mountain or in glen,
Nor tree, nor shrub, nor plant, nor flower,
Nor ought of vegetative power
The weary eye may ken.

For all is rocks at random thrown,
Black waves, bare crags and banks of stone,
As if were here denied
The summer sun, the spring's sweet dew,
That clothe with many a varied hue
The bleakest mountain side."

Several Hadena Pisi flew past us as we stood on the cairn. In a shallow pool near the summit Hydroporus halensis and Agabus congener were tolerably common. In coming down the hill-side we observed Scopula alpinalis and Eupithecia pumilata. After reaching the base we had a walk of twelve miles, part of which was occasionally enlivened by a pell-mell chase after Bombyx Rubi.

In the evening we reached Craignure on Mull's "dark Sound," where next forenoon we were received on board the "Clansman" by her hearty and courteous commander, Captain Graham. Our voyage conducted us to Stornaway in Lewis. The whole of our Highland trip was one of much enjoyment, and everywhere we had to acknowledge God's preserving care of us. But our limits compel us to bring these remarks to a close.

Alexander Somerville.

328, Renfrew St., Glasgow.

Capture of Deilephila lineata at Brighton.—I had the pleasure of setting out this week a pair of Deilephila lineata, male and female. The first was captured by a boy on Saturday morning last, the 12th inst., not a hundred yards from where I live, and taken to Mr. Swaysland, naturalist, Queen's Road. The second was taken by Mr. Swaysland himself, in his garden just outside the town, on Tuesday morning last, the 15th, inst., who sent them to me to set out. Mr. Bond saw the last one alive, and identified the species. I believe there cannot be the slightest doubt of their being truly British specimens.—*Thomas Thorncroft; 87, North Lane, Brighton, May* 17, 1860.

Deilephila lineata.—A fine specimen of this insect has just been brought to me to set out; it was taken near here, at rest among some grass and weeds in a hedge, and, from its appearance, cannot have left its pupa-case more than a couple of days.—*J. Hellins; Exeter, May* 14, 1860.—*From the 'Intelligencer.'*

Deilephila lineata.—On the evening of the 13th I succeeded in capturing three specimens of this insect hovering over the flowers of the white Narcissus, their flight being precisely like that of M. stellatarum.—*R. M. Stewart;* 3, *Park Place, Torquay, Devon, May* 14, 1860.—*Id.*

Larva of Talæporia pseudo-bombycella carnivorous.—On the morning of the 23rd ult., whilst sorting over the Micro larvæ I had collected at West Wickham the previous day, I observed a larva of Talæporia pseudo-bombycella. Not having brought home any fresh lichen I put the larva into a jar containing four females of Diplodoma marginepunctella. I should here observe that this jar, previous to the introduction of the

T. pseudo-bombycella larva, only contained a small piece of lichen, four females of D. marginepunctella, and the cases from which the aforesaid females had emerged. On the 29th I took the jar down for the purpose of mounting the females upon card, when, to my surprise, I found that the T. pseudo-bombycella larva had devoured them, and on closer inspection I observed it had decorated the top part of its case with the skins of its victims. In order, if possible, to observe its carnivorous propensity, I placed it together with a dead Micropteryx purpurella in a pill-box, and, upon opening the box at about ½ past 4 P. M., I perceived it had got the dead M. purpurella in its jaws, and was eating it. On the 7th inst. I put four more larvæ into a jar along with a dead house-fly and a woodlouse. One larva instantly commenced operations upon the stomach of the woodlouse, where it remained until I unfortunately disturbed it on the evening of the 9th inst. The other larvæ, however, evinced no desire to eat either the lichen or the insects, but crawled up the side of the jar, and being full-fed spun up.—*Charles Healy; 74, Napier Street, Hoxton, N., May* 14, 1860.

Food-plant of Œcophora tripuncta.— In answer to one of Mr. Miller's inquiries respecting the habits of the various Micros mentioned by him, I beg to inform him that both Mr. D'Orville, of Alphington, and myself bred Œcophora tripuncta. The larvæ were found by Mr. D'Orville feeding on a bunch of dried mint, hung up in an out-house. Mr. D'Orville very kindly gave me some of the pupæ, but I had not the larvæ. I have no doubt but Mr. D'Orville can furnish us with a description of the larvæ. The habits of this species appear to resemble very closely that of Endrosis fenestrella in eating the leaves and stems of dried plants, or, in fact, being omnivorous.—*Edward Parfitt; Museum, Taunton, May* 11, 1860. PS. I find by reference to my notes that Œcophora tripuncta came out June 10, 1859.—*E. P.*

On the Capture of Dermaster Blaptoides in Japan.—As I am in a good humour, having just fished up a new genus of Mollusca from a pretty good depth, I will tell you, at the risk of being tiresome, all about it, as I am sure Adam White, at least, will be interested in the narrative. I was walking solitarily, for all hands had gone on board to dinner, along the shell-strewn strand of Taleu-Sima, a jolly little island, not far from the shores of Niphon,—walking along in a brown study, smoking a little clay cutty-pipe, and thinking chiefly of the contempt in which I should be held if some of my "very particular" friends saw me in my disreputable "rig," for my neck was bare, my coat was an old blue serge, and as for my hat it was brown felt, and I must say a "shocking bad one." However, the sun was bright, the clear blue rippling sea was calm, the little island was new and verdurous, and I smoked serenely. On a sudden my abstract downward gaze encountered a grotesque Coleopteron, in a suit of black, stalking slowly and deliberately among the drift-wood at my feet, stepping cautiously and delicately over the spillican twigs, like a Catholic priest in a crowded thoroughfare. At once I knew my Coleopterous acquaintance to be Dermaster Blaptoides, for although my eyes are small, yet I have been assured by a young lady friend of mine, sometimes irreverently called "Polly," that they are penetrating, and my friend Adam White, when he warned me not to neglect my "Carabs," had sent me a rough outline of the "corpus" of Dermaster. So I carefully lifted my unresisting sable friend from his native soil, and, after giving him a good long stare, I deposited him in a bottle. From his name and appearance I judged him to be cousin to Blaps, and I turned over the rock-weed for his brothers and other relations, but though Helops was there, Dermaster was not. Puzzled, but not baffled, I conceived his tastes might be more particular, so I ascended the steep green sides of the island, and cast about for rotten trees, nor was I long in discovering a very promising stump, nicely decayed, and full of holes enough to captivate the heart of any beetle. Being, however, fatigued with my scansorial efforts, I sat down before the citadel of the Dermaster, and assisted my deliberations by smoking a solemn pipe. Having propitiated Nicotiana and matured my plan of operations I commenced the work of destruction, when, lo! among the vegetable *débris* I described a long dusky leg, anon two more, and then, buried among the ruins, the struggling Dermaster. In this manner was the rarest beetle known captured by a wandering disciple of Æsculapius and an eccentric Fellow of the Linnean Society.—*Arthur Adams.*

On the Capture of Carabi in Manchuria.—Some "innocent" not yet versed in the deep mysteries of beetle lore, and not inured to the toils of beetle-hunting, who may never have seen as I have the indefatigable Doctor Power on his stomach in a ditch, spectacles on nose, and the perspiration streaming down his cheeks with his fossorial exertions; such complacent "know-nothing" may imagine that because I have some thousand beetles nicely carded in my store-box that I have only picked them up, and only put them down. To such young person I can severely answer, You are quite mistaken. Take, my friend, those great carnivorous ground-beetles, for instance the Carabi. Could you but see certain enthusiasts (for I had imbued many with the love of beetles) rushing wildly over the boulders and large flat stones in dried-up watercourses, at the "imminent deadly risk" of bruised shins and sprained ankles, eager in the pursuit of tantalizing, active Cicindelæ, or could you but mark their progress on the plain by huge stones upturned, or witness their frantic struggles and torn habiliments in the scrub along some beach-fringing belt of trees, you would certainly, my dear young friend, modify your opinion. Come with me; we are in Manchuria (spelt all kinds of ways, and vulgarly called "China Tartary"); we land in a ship's boat, and are left to the tender mercies of the mosquitos and bears. I put the gnats first because their name is legion, and their torment is nearly unbearable; but the angelic bears are "few and far between;" in fact, although I may have several of their skulls, I only had a good look at one, and he escaped with his valuable life, though several of us thirsted for his blood. We push our way breast-high in tangled brushwood, long hard grass and creepers and bamboos up the sloping sides of the sea-skirting hills, and when we reach the top we find it comparatively level, and instead of breast high in brushwood, it is knee-deep in flowers—peonies, monkshood, Hoteras and Campanulas; the trees are large, and there is more animal life astir. The pied woodpecker is scrutinizing the whereabouts of grubs, and giving now and then an inquiring tap, while the little striped ground-squirrel plays at hide-and-seek among the branches of fallen trees. The head of a startled deer may be seen for an instant (a long brown nose and two great inquiring eyes), and then a portion of his other extremity, as he bounds away in the dim vistas of the trees. But I am wandering; my business is beetles. One thing in this wild green wilderness of Manchuria is the prodigious number of charred and blackened trees that strew the ground in every direction, though often so overgrown with weeds that the way you become acquainted with them is generally more practical than pleasant, namely, by finding yourself on your face among the flowers, your shins barked and your temper ruffled. The phenomenon of the prostrate trees is owing to the wandering shooting and fishing parties of Manchoo Tartars, who always fire the scrub and burn down the trees, to clear the land and make it yield good pasturage. It is, however, under these burnt logs that Carabs "most do congregate;" and the labour it requires to dislodge and capture them is really no joke. Two small bipeds (energetic withal, and determined) might be seen in this great wild hill-side, one at each end of an immense blackened log. By well-directed efforts, assisted by sundry encouraging exclamations, as "There! she moves," "Now then, Doctor," or "Again, again, again!" the log is turned over, and my amiable and worthy colleague, Sutherland, or my impetuous messmate, Buckley, will share with me possibly one or two fine Carabi; perhaps a neat black species with grooved elytra, perhaps the gorgeous Carabus intricatus in all his emerald glory, perhaps one equally as large, green and beautiful, with rows of beads on his wing-covers, or a small brown flattish species. Besides these you may bag a few specimens of Helops and Helops' cousin-germans, and sometimes a Dorcus or Lucanus will reward our persevering, praiseworthy exertions. But oh! what sweeps we look on our triumphant return! Our nether habiliments, now no longer white, are somewhat torn, our hands are decidedly "dirty paws," and our faces as smutty as the bottom of the family tea-kettle.—*Id.*

Opatrums and Sand.—We are at Hakodadi, in the island of Yesso. The day is fine and tempting, and the ship-worn naturalist is longing for a walk; for, believe me, the charms of Nature are very much enhanced after weary days of monotonous routine on board a ship. I trace the long, sweeping curve round Hakodadi Bay; long strings of horses carrying all kinds of merchandize pass me repeatedly: I buy a wicker-basket for an "itzelin," and fill it with skulls and shells before I get afloat again; and now the great object of my desire, Umbonium giganteum, a molluscous Trochidian, has been secured "in the flesh," and the remainder of the walk is devoted to beetles. I intend to cross the narrow, sandy isthmus connecting the two bays and follow the outline of the outer one. Far along the sandy beach I go, my soothing pipe inviting meditation, and eyes, that "to their earthy mother tend," intent on chalcedony, carnelians and nodules of marble, of which there are galore on the "beached margent of the sea." The sunken camp is passed, where astute Nipong men daily practise rifle-shooting, and near which tempting deposits invite inspection and reward the Coleopterist with a huge black Copris, an amethystine Geotrupes, and a singular Onthophagus with long recurved frontal horn, and where Euchloræ abound on the leaves of the young oaks. Vast mounts of white sand, covered with undulations like the ripples of the sea, drift-hillocks, soft and dazzling like heaps of snow, long wavy ridges, half burying the fishermen's huts and banking up the boat-houses; roses, large, blushing and fragrant, and Sedums with whorled succulent green leaves, and everywhere Opatrums. Rolling down the gentle sand declivities, or crawling painfully up the banks, under the dry, scattered shards of oxen and horses, under heaps of dead leaves, and by the snaky roots of brine-washed plants, there nestle scores and scores of gray-brown, rusty brown-black, rough-coated indolent Opatrums. Without much labour you may gather them by bushels, and leave as many for your friends. With the exception of their colour, which varies according to the amount of sand and dirt on their bodies, they are all alike as two peas, and tired, dusty and ungrateful, you come to the conclusion that all is—Opatrums and sand.—*Id.*

On the Capture of Dicranocephalus Wallachii in the Korea.—Forming one side of Chosan Harbour, in the Korea, is a green hilly island, covered with low trees, chiefly oak scrub, and full of loose moss-grown, lichen-covered, loose stones. In some parts the sides of the hills are furrowed by water-courses, where the wild pig feeds on the fallen acorns, and where the little hog-deer comes to drink. In other parts the broad base of the hill expands into grassy plains, where troops of horses graze, and where we find shallow scattered ponds, the favourite resort of sundry ducks and wigeons. It was in one of the wooded ravines of this little island that Dicranocephalus was taken, and this is the true and particular history of his capture. I am ashore with the watering-party, and as usual on the alert for beetles. Net in hand I wander far away over the hill-side, beating now and then the oak-scrub for Balaninus and Apoderus, or bagging pretty Longicorns as they come flying by, or taking glittering Agrili and its allies as they pitch on the sunny oak-leaves; and this, by the way, is how the Buprestidæ may be caught. Old Turner may patiently dissect decayed stumps of hawthorn in the New Forest for Anthaxia, but if he had watched, net in hand, in the fern among the young oaks, he would have seen them shining in the sun. However, as I wander on, I "keep my weather eye lifting," as we say in nautical phrase. Now friend Buckley has an especial penchant for game of a larger kind, looking down secretly may be on beetles and "such small deer," so, gun in hand, he is on the trail of a buck. On a sudden I am aware that something of an unwonted nature has succeeded in astonishing the mind of my predatory companion, for "Doctor! doctor!" resounds through the gulley. Hastening as fast as untractable boughs and prickly twining stems of Smilax will permit me to the scene of excitement, I am agreeably surprised on beholding a strange great Coleopteron feebly struggling in a green bed of oak-leaves, and my friend of the fowling-piece gazing with surprise, not unmixed with alarm, at its unwonted aspect. I know him for a Goliath, and raise him carefully from his verdurous couch. Haply he has been flying in the sun round yonder cluster of fir trees near the top of the hill, and fallen, like Icarus of old, from his high estate. His body is covered with a downy bloom, like the sunny side of a ripe plum, and his head is adorned with two conical horns; hence his name, Dicranocephalus, or "he of the double helmet." He is very strong, and in his ways resembles Octonia and Melolontha. I read in 'Maunder' that one specimen, now in the British Museum, was taken on the Himalayan Mountains, so that my prize, if not indigenous to the Korea, must have travelled a pretty long way. Be that as it may, he is now carded (not barbarously transfixed by a pin), and graces my store-box, wherein are displayed many beetles of equal beauty, but possibly of less celebrity.—*Id.*

Chrysomela marginalis found on the Mainland of Caithness, N.B.— My son, William Betts Peach, found a short time since the above-named pretty beetle on the island of Stroma, in some numbers on the grassy slopes at the north end and west side of that island. On first seeing a specimen I called it the Royal Volunteer, from the red stripe running down each side of it. Not being an entomologist I sent specimens to Andrew Murray, Esq., of Edinburgh, who kindly named it for me, and added, "Common on the Continent, but Orkney is the only Scotch locality yet recorded." Stroma belongs to the county of Caithness, and thus with perfect propriety it could be claimed for Scotland; now it may be safely, for on Saturday last, the 28th inst., my son found it rather plentiful on Duncansbay Head, and the cliffs thence to near Freswick, on the mainland of Caithness.—*Charles William Peach; Wick, N.B., April* 30, 1860. [The insect is Chrysomela sanguinolenta of our cabinets.—*E. N.*]

Notes on the British Trichopterygidæ, with Descriptions of some New Species. By the Rev. A. Matthews, M.A.

Since the publication of my former paper on the Trichopterygidæ many very interesting additions have been made to the list of our indigenous species. At that period, June, 1858, the curious group which I separated from the rest of the family, under the generic appellation of Ptinella, was represented in this country by a single individual of a species previously undescribed, and although as many as eight species were already known on the Continent not one of that number had appeared in these islands.

During the last twelvemonth a great change has taken place. Early in the season, at a meeting of the Entomological Society, Mr. Janson announced the capture of three of these much-wished-for species, *viz.*, P. ratisbonensis, P. tenella and P. angustula. I must here remark that we were in error with regard to the last-named species, P. angustula. While staying in Paris for a short time, in February last, I had the opportunity, through the kindness of MM. Allard and Fairmaire, of examining some of the French collections of Trichopterygidæ, and discovered that the species first taken by Mr. Janson, and subsequently by my brother, the Rev. H. Matthews, and myself, was not the true P. angustula of Gillmeister, but one which has been lately found near Paris by M.M. Reitche, Fairmaire and others, and described by M. Fairmaire under the name of denticollis. All the specimens taken by Mr. Janson were found in the early part of last spring, and in the course of the summer my brother and I were fortunate enough to meet with three fresh species, as well as specimens of denticollis already alluded to. They were again, by a curious coincidence, two apterous and one winged species, *viz.*, P. aptera, P. angustula (this time the true P. angustula of Gillmeister) and P. limbata; so that at the present date the British list includes no less than seven distinct species of this curious and highly interesting group, *viz.*:—P. britannica, *Matth.*; P. aptera, *Gillm.*; P. tenella, *Erichs.*; P. denticollis, *Fairm.*; P. angustula, *Gillm.*; P. limbata, *Heer*; P. ratisbonensis, *Gillm.* But by no means the least satisfactory result of the capture of these living examples has been the discovery of large and well-developed eyes in the species hitherto considered sightless. It always appeared to me somewhat incomprehensible how an animal unendued with sight could not only move with such surprising rapidity in any purposed direction, but also avoid the obstacles it met with in its path, as I have often seen these insects do. But the mystery is now solved; the many species comprised in the blind section of this genus, the "sans yeux" of the Faune Française, in reality possess as perfect visual organs as fall to the lot of any existing beetle,— the only peculiarity of these organs being the fact that they are concolorous with the other parts of the head, and situated mainly on its lower surface, a small portion only being visible from above. The labium and other parts of the mouth also deserve some notice, exhibiting in many respects a great affinity to Deinopsis and other Brachelytrous insects. As I observed in my former paper, I think this family intimately connected with the Brachelytra. The well-known similarity of their habits, the high caste of their physical powers, the striking resemblance of their outward shape, and, as far as our present investigations reach, of the various organs of feeding and motion, all concur in placing them in close proximity to that extensive section. I am persuaded that this class is much more numerous than is generally supposed, and that many species are yet unknown. It is not a little remarkable that in the course of one year as many as six species of a genus, so long known and sought for by British Coleopterists, should have occurred for the first time in this country, but it is a fact which holds out abundant promise of future success; all the specimens of the past year were taken under the bark of decaying trees, and, where this habitat can be met with, I do not think the species of tree or the locality itself is of much importance; the collector must be furnished with a large amount of patience and perseverance, and then he need not despair of success. Besides the Ptinellæ the last season was productive of several novelties in the other genera of this family, two of which, Ptilium brevicolle and Ptenidium picipes are now described for the first time.

I had intended in this paper to have revised the whole list of British Trichopterygidæ, as much yet remains to be done before we can hope to arrive at a thorough uniformity of nomenclature; but for the want of reference to the works of some continental authors I am not yet able to do this effectually, and must, for the present, content myself with noticing a few of the most important corrections. The insect described in my former paper as "Pteryx mutabilis" has proved to be indentical with the the T. suturalis of Gillmeister, although nothing can be less descriptive of the animal than his figure, or more inappropriate than the name he has given it. I have also ascertained by comparison with the French collections that the T. mollis of Mr. Haliday is the T. fucicola of the continental authors; and as the latter name possesses the right of priority, it must in future be used to designate this species in our lists. It will, I fear, be also necessary to change the name of Titan, under which I separated T. abbreviatellus from the rest of the family, as that term is objected to on the score of preoccupation by a genus of exotic Longicorns. In lieu of Titan, therefore, I propose to substitute Elachys (ελαχυς), perhaps the more expressive name of the two. The genus created by this separation may be characterised thus:

ELACHYS, *nov. gen.*

Trichopteryx, p. *Heer; Erichs.; Faune Franç. Alibert; Haliday.* Titan (*Newman*), *Matth. Zool.* 6110.

Antennæ articulis undecim, basali maximo cylindrico, secundo magno, orbiculato, sex sequentibus fere æqualibus, tribus ultimis majoribus, rotundatis, apicali acuminato; elytra abbreviata, quadrata, abrupte truncata; pedes breviores, coxis omnibus magnis, posterioribus haud laminatis.

Hoc genus multo magis *Ptilii* quam *Trichoptericis* formam gerit; ab illo differt elytris brevissimis, truncatis, et coxis dilatioribus; ab hac autem totâ formâ dissimili, et coxis haud laminatis.

Ptilium brevicolle, nov. sp. L. c. $\frac{1}{6}$ lin. Oblongo-ovatum, profundissime ac rugose punctatum, sparsim pubescens, piceo-brunneum, capite magno, tribus foveolis longitudinalibus in frontem indistincte impressis; prothorace transverso, lato, capite multo breviori, lateribus parum rotundatis, angulis obtusis; scutello magno triangulari; elytris haud truncatis, ad humeros prothorace angustioribus, posterius parum dilatatis; pedibus et antennis robustis, testaceis.

Hæc species singularis, capite magno, prothorace brevissimo et corpore rugoso ab omnibus aliis facillime potest cognosci. Capta prope Weston in agro Oxoniensi.

Oblong-ovate, very coarsely punctured throughout, pitchy brown, sparingly pubescent; head very large, with three obscure longitudinal impressions on the forehead; thorax transverse, wide and very short, not so long as the head, with the sides somewhat rounded and the angles obtuse; scutellum large, triangular; elytra entire, rather narrower than the thorax at the shoulders, but wider towards the apex; legs and antennæ very robust, testaceous.

This very distinct and curious-looking species is, with the exception of unusually minute examples of P. minimum, the smallest Coleopterous insect I have ever seen. It is more nearly related to P. Kunzei than to any other of the genus, but may be readily distinguished from them all by the peculiar shape of the head and thorax, and the extreme roughness of its punctation. A single specimen only has yet occurred, taken by myself in Oxfordshire some years ago.

Ptenidium picipes, nov. sp. L. c. $\frac{3}{8}$ lin. Ovatum, convexissimum, lævissimum, nigrum, punctis remotis per totum corpus notatum; capite magno, oculis prominulis; prothorace capite longiori, lateribus valde rotundatis, angulis obtusis; scutello magno, triangulari; elytris ovatis, prothorace parum latioribus, posterius angustatis, apicibus obtusis, ad apicem dilutioribus; antennis ac pedibus piceis, aut piceo-nigris.

A *P. punctato* forma ovata et convexissima ad distinguendum valeat; ab aliis antem puncta per totum corpus dispersa, atque membra nigrescentia hanc speciem indicant. Exempla nonnulla capta in Muscis prope Gumley vere novo.

Deep black, ovate, very convex and shining, deeply but very remotely punctured throughout; head large, with the eyes rather prominent; thorax rather longer than the head, with the sides very much rounded and the angles obtuse; scutellum large, triangular; elytra rather wider than the thorax, ovate, narrowed posteriorly, with the apex obtuse, rather paler towards the apex; legs and antennæ piceous or pitchy black, the latter rather darkest.

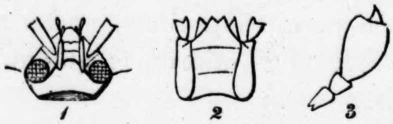
The curiously punctured surface of the body may, and I dare say has, confounded this species with P. punctatum, but it may be easily distinguished from that insect by its very great convexity and ovate and wider form, and also by having the disk of the thorax punctured throughout without the smooth space so conspicuous in P. punctatum. From the rest of the genus it may be known by the deeply punctured surface of the body and its dark limbs. It appears to be a very local species; I find it in moss in the early part of the spring, at one small spot near this village, but not elsewhere.

Besides the foregoing two other species were added to the British list in the course of last year, *viz.*:—

Ptilium cæsum (Erichson). Found rather plentifully by Mr. Gregson in ants' nests sent from Scotland.

Ptilium saxonicum (Gillmeister). Of this one pair were taken by myself near this place in June.

In order to give a more correct idea of the appearance and position of the eyes in the wingless species of Ptinella, I send a sketch of the under side of the head of P. aptera, as these organs are more conspicuous in that species than in the rest, but with a high power they may easily be discerned in all that I have hitherto examined, *viz.*, P. britannica, P. aptera, P. denticollis and P. angustula. I have also added an enlarged view of the labium and adjacent parts. This dissection was obtained from P. denticollis, but the labium is similar in the other species.



1. Under side of the head of Ptinella aptera.
2. Labium, with the adjacent parts.
3. Maxillary palpus.

A. Matthews.

Gumley, Market Harborough.
May 1, 1860.

Errata.—I must also call your attention to some errata in my last paper on the Trichopterygidæ, since, in more than one instance, these mistakes change the meaning of a whole sentence. P. 6106, line 4 from top, for "acuminata" read "acuminato." P. 6106, line 18 from top, for "exigua" read "exiguo." P. 6107, line 13 from top, for "determisset" read "deterruisset." P. 6108, line 6 from top, insert a comma after "differt." P. 6108, line 18 from top, insert a comma after "calcaratis."—*A. M.*

Note on Brachycentrus subnubilis of Curtis.—This insect has been very abundant here this spring, indeed swarming along both the banks of the river and the still waters of the canal. There appears to be some discrepancy between Stephens' diagnosis of this genus and that of Dr. Hagen; thus, Stephens gives "Tibiæ with a pair of short spurs at the apex; the intermediate and hinder pair with a second pair below the middle." Dr. Hagen gives 2, 3, 3; this is correct; but the Doctor has inserted a note (?) as to the number of joints in the maxillary palpi; he thinks two. The note of interrogation may be removed, as two is the number in the males, and three in the females. Now both the authors above quoted give June as the time of appearance for this species. I took them first about the middle of April, and they are now fast disappearing, so that by June I do not think there will be one to be seen. This locality it is true may make some difference as to the time, for more to the north, if possible, they are later in their appearance. The local names of this species I have ascertained tained from a fly fisherman. The male is called the "hare's flex;" this, I am told is from the fly-makers using the flex or felt from a hare to imitate this fly. The female is called the "granum," pronounced gran-um; this I hold to be a corruption of the word greenum, as it is given in consequence of the female having a large green egg attached to the apex of the abdomen, which remains attached until carefully deposited in the water, when it rapidly sinks to the bottom. I am somewhat inclined to think that Stephens had a different insect in view when he constructed his diagnosis, or I think he would not have made such a mistake in the number of spurs on the intermediate and posterior tibiæ; and in this I am somewhat borne out by capturing an insect similar to this, and agreeing with its generic characters, although I did not detect it until I had decapitated it and otherwise mutilated it in dissecting for the generic characters of the genus Brachycentrus. I then found the maxillary palpi differed in the form of the basal joint; the apical joint is not pilose in front, but thickly pubescent all round; the spurs on the tibiæ are as Stephens described them, 2, 4, 4. The coloration of the wings is the same as B. subnubilus, and so nearly like it in other respects as to be easily taken for that insect without closer inspection; but I hope to take more of this species, and I will then give a full description of it. At the same time I should wish to draw the attention of entomologists to the fact that every "apparent like is not the same"—*Edward Parfitt; Museum, Taunton, May* 8, 1860.

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

May 7, 1860.—J. W. DOUGLAS, Esq., President, in the Chair.

Donations.

The following donations were announced, and thanks ordered to be presented to the donors:—'Fragments Anatomiques sur quelques Elatérides;' 'Fragments Anatomiques sur quelques Coléoptéres;' 'Fragments d'Anatomie Entomologique;' 'Note sur l'Absence dans le Nemoptera lusitanica d'un Système nerveux Appréciable;' 'Description des Galles du Verbascum et du Scrophularia, et des Insectes qui les Habitent, pour servir à l'Histoire du Parasitisme;' 'Mémoire sur une nouvelle éspèce de Belostoma (B. algeriense) et Reflexions sur ce genre d'Hémiptères Aquatiques;' 'Recherches Anatomiques sur les Hyménoptères de la Famille des Urocerates;' 'Fragments d'Anatomie Entomologique sur les Buprestides, suivis de la Description d'une éspèce nouvelle de Cychrus d'Espagne;' 'Histoire Anatomique et Physiologique des Scorpions;' presented by the Author, M. Léon Dufour.' Naturgeschichte der Insecten Deutschlands,' Eister Band, Eiste Haefte; by the Author, Dr. H. Schaum. 'The Butterfly Number of Young England;' by the Author, E. Newman, Esq. 'The Zoologist' for May; by the Editor. 'The Literary Gazette' for April; by the Editor. 'The Journal of the Society of Arts;' by the Society. 'The Athenæum' for April; by the Editor. 'The Farm and Garden,' Vol. ii. Nos. 13, 14 and 15, containing papers on Injurious Insects; by the Author, C. A. Wilson, Corr. M.E.S. 'The Entomologist's Weekly Intelligencer,' Vol. iv. and Nos. 183—187; by the Editor, H. T. Stainton, Esq. 'Die Deutschen Phytophagen aus der Klasse der Insekten,' von J. H. Kaltenbach; by the Author. 'List of the Specimens of Lepidopterous Insects in the Collection of the British Muséum,' Part xx. Geometrites; by the Author, Francis Walker, Esq., F.L.S., &c. 'Insecta Saundersiana, or Characters of Undescribed Insects in the Collection of William Wilson Saunders, Esq., F.R.S., &c.;' 'Coleoptera Curculionides,' Part ii., by Henri Jekel; by W. W. Saunders, Esq.

Exhibitions.

The President exhibited a living specimen of Homæusa acuminata, found by Mr. Scott in a nest of Formica fuliginosa, at Mickleham, and living examples of Claviger testaceus from the same locality.

Mr. Stevens exhibited a large collection of Coleoptera, made by Mr. H. Squire in the neighbourhood of Rio.

Mr. Janson exhibited some Coleoptera and Lepidoptera sent from Perthshire by Mr. Turner.

Mr. Scott exhibited Bolitobius inclinans, Mycetoporus lucidus and Elachista gangabella, and made the following observations respecting them:—

Bolitobius inclinans, Grav. A single example taken at Coombe Wood. Authors, so far as I am aware, have not observed, or if so not described, the remarkable development of the basal joint of the intermediate tarsi.

Mycetoporus lucidus, Erichs. Only three or four individuals of this species are known as having been taken in England previously. One specimen also taken at Coombe Wood.

Elachista gangabella, Zeller. The type form of this species has a white fascia on the anterior wings, as in E. zonariella and others of the group. The specimen exhibited, however, is entirely black. In certain lights there are very faint indications of the fascia. Bred by me last year from larvæ received from Mr. Stainton. It seems to be quite a south country species, and very local.

Mr. W. W. Saunders exhibited a small folding box, manufactured by Mr. Harris, of Oak Lane, City, for the purpose of transmitting small articles by post; from its lightness and strength he considered it would prove useful for entomological purposes.

Mr. Saunders also exhibited some small galls growing in close clusters, found under the ground on the roots of common hazel. He had not yet succeeded in rearing the insect which caused them, but considered it must prove a distinct species from the Cynips Quercus-radicis, the galls produced by which are found on the oak, generally on the surface or immediately above ground.

Mr. Saunders also exhibited an apparently new species of Harpalus, taken in Ireland by Mr. Bouchard; and illustrations of the economy of a beetle, apparently of the genus Urodon, from the Cape of Good Hope, which, in the larva state, inhabits one of the cells in the seed-vessel of a Mesembryanthemum, forcing the remaining cells, which become abortive, into a very small space.

Mr. Walker observed that the galls exhibited by Mr. Saunders were probably similar to one which Mr. Bouchard had lately found at the root of an oak tree. This gall was in the possession of Mr. Smith, who has reared numerous Cynipidæ from it, and also specimens of a Pteromalus, which much resembles P. Puparum, the butterfly-chrysalis parasite.

Mr. H. Cooke exhibited a hybrid moth which had been obtained in the following manner. He had bred a considerable number of Ephyra trilinearia and E. orbicularia, and had repeatedly endeavoured to pair the opposite sexes of these species, but only succeeded in one instance in doing so, the insects being a male E. orbicularia and female E. trilinearia. The female deposited eight eggs, all of which hatched, and the larvæ in due course were full-grown, at which time they presented great dissimilarity in appearance, two or three exactly resembling the larvæ of E. trilinearia, while others were precisely like those of E. orbicularia, the remainder differing much from those of either parent. Although all of them seemed to enter the pupa state in the most satisfactory manner, yet only the one moth exhibited, and that somewhat crippled in the posterior wings, was produced. This insect bore very little resemblance to either species, the colour and markings approaching nearer to E. poraria, the central fascia common to all the wings being broad and well defined.

Mr. Bond exhibited a specimen of Smerinthus ocellatus, having one side of the abdomen pure white, the markings in all other respects being as usual. The insect was taken at Freshwater.

Mr. Rye exhibited a specimen of Euryporus picipes, taken at Holme Bush. Also both sexes of Ptinus germanus, from Purfleet; and a fine series of Badister peltatus, taken by himself near Boston.

Mr. Saunders read the following extracts from Froebel's 'Central America,' pp. 433 and 537:—

Poisonous Caterpillars.

"Early the next morning we arrived at San Antonio. Here I learned what had befallen, during the three months of my absence, the small caravan with which I had started from Chihaohoa. They had encamped in the prairie, a few miles from San Antonio. Sickness had broken out among the mules, carrying off nineteen of the best animals, and afterwards more died on the road. Several had been bitten by rattlesnakes, and saved with the greatest difficulty. The same thing happened to one of our drivers, but a remarkable accident befel the waggon-master; he had crushed on his hand a little hairy caterpillar which was crawling on it, and in a few minutes the most alarming symptoms appeared. A shiver ran from the hand through his whole frame, and especially down his back. His abdomen swelled, his tongue was heavy, his consciousness became dimmed, and for a week the man was in imminent danger. I afterwards saw the caterpillar in a collection of insects at San Antonio, where the patient recognised it. If he was right it is a little worm covered with long yellowish hairs, about a quarter of an inch long; it resembles a caterpillar, but whether it is one I cannot say. I afterwards heard of other examples of the extraordinary effects caused by this creature. In a garden at Indianola one of them dropped from a tree on to a child's arm, who immediately screamed with pain; the arm swelled, a violent fever came on, and the child's life was in great danger for several days."—p. 433.

Mineralogical Ants.

"Before continuing the account of our journey I must offer a remark connected with an observation I made in the desert. When traversing certain parts of the North-American Steppes and Deserts I have frequently observed ant-hills formed exclusively of small stones of the same mineral species, as, for instance, small grains of quartz. In one part of the Colorado Desert the hills of these mineralogical ants consisted of heaps of small shining fragments of crystallized feldspar, chosen by these little animals from the various components of the coarse sand of these parts. The last time I was at El Paro a North-American driver came to me and inquired the value of a small bag of garnets he possessed. On my asking in what place they had been found I heard that these stones — imperfect crystals of red transparent garnets — were the material of which the ants build their hills in the country of the Navago Indians, in New Mexico, and that he knew a place where any quantity of them might be collected. These remarks may perhaps not be uninteresting to the question relating to the gold-seeking ants of Herodotus."— p. 537.

Mr. Saunders also read descriptions of some new species of the genus Erateina; and exhibited the insects to the meeting.

Part 5 of the current volume of the Society's 'Transactions' was on the table.—
E. S.

NOTICES OF NEW BOOKS.

'*The Canadian Naturalist and Geologist.*' Vol. v., Nos. 1 and 2. Montreal: Dawson, Great St. James Street. London: Sampson Low, Son and Co.

The commencement of a fifth volume of 'The Canadian Naturalist' is a fact to be hailed with satisfaction, and we may state that it fully maintains its interesting character. Mr. D'Urban contributes "Observations on the Natural History of the Valley of the River Rouge;" Dr. Dawson a paper "On the Tubicolous Marine Worms of the Gulf of St. Lawrence;" Mr. Kemp "A Classified List of Marine Algæ from the Lower St. Lawrence;" Mr. Billings describes a new Palæozoic Starfish of the genus Palæaster from Nova Scotia; "An Abridged Sketch of the Life of Mr. David Douglas, the Botanist;" a paper "On the Silurian and Devonian Rocks of Nova Scotia, by Dr. Dawson;" "Descriptions of New Species of Fossils from the Silurian Rocks of Nova Scotia," by Mr. Hall; "A Review of Darwin's great work 'On the Origin of Species by Natural Selection;'" and a number of miscellaneous papers extracted with much judgment from other journals. I have gladly accepted the offer to exchange the 'Zoologist' for the 'Canadian Naturalist;' I hope other editors of English or European journals will follow the example, and will from time to time give a summary of the contents of the latter. Nothing tends more effectually and beneficially to advertise a Natural-History periodical than the plan of giving a list of its contents, unaccompanied by any disparaging observations. Praise is not required, nor will it induce many purchasers, but a careful abstaining from every remark that can be construed into an exhibition of ill-will or jealousy on the part of the editor is absolutely essential when dealing with the labours of a brother journalist.

'*Animal Physiology.*' By WILLIAM CARPENTER, M.D., F.R.S., G.,S. L.S. New Edition. Thoroughly revised and partially rewritten. London: H. G. Bohn, York Street, Covent Garden. 1859. Foolscap 8vo., 604 pages letterpress, and numerous woodcuts.

This book is so well known that it is useless to say anything of this particular edition.

13 JY60

Price 12s., post free.

A FAMILIAR INTRODUCTION to the HISTORY OF INSECTS; with GLOSSARIAL INDEX. By EDWARD NEWMAN, F.L.S., late President of the Entomological Society. This work is illustrated with a profusion of engravings, executed in the first style of the art, from the Author's own drawings on the wood. It is divided into four parts. The *first* gives a detailed account of the habits and manners of the most interesting insects, and a description of their wonderful transformations. The *second* treats of capturing, killing and preserving insects, and of constructing cabinets: the most ample details are given, and the Author has taken especial pains to explain the most expeditious mode of killing insects, in order to inflict no unnecessary pain on the insects themselves, and also to save the feelings of the humane and kind-hearted. In the *third* part the Author describes, in an easy and popular manner, the structure of insects, using language which all may understand, yet never deviating from scientific accuracy. The *fourth* part gives a sketch of the classification of insects; and the work concludes with a very complete GLOSSARIAL INDEX, each technical word having an explanation as well as reference.

Price, printed on both sides, 6d., or 7d., post free; or printed in duplicate (one copy for Labels and the other for reference), 2s., post free.

SYNONYMIC LIST of BRITISH BUTTERFLIES and MOTHS. By HENRY DOUBLEDAY. This is the only complete List of British Lepidopterous Insects. It contains the names and synonymes of every Butterfly and Moth discovered in Great Britain up to the date of publication. The arrangement is founded on that of M. Guenée, the *Facilis Princeps* of Lepidopterists. The great object in printing this most complete and laborious work is to establish a uniform nomenclature, the diversity hitherto existing, both in names and arrangement, being a source of confusion and perplexity to all beginners. Not only is Mr. Doubleday's own collection (the normal collection of British Lepidoptera) arranged and named in accordance with this list, but the Entomological Societies of Oxford and Cambridge adopt it in their 'Accentuated List,' recently published.

Please to address, "Edward Newman, 9, Devonshire Street, Bishopsgate, London, N.E.," to whom Post-Office Orders may be made payable, at the Bishopsgate Street Money-Order Office. Payment may be also made in Post-Office Stamps.

Now ready, with alternate blank pages for Memoranda, price 1s. 6d., cloth boards, 2s.

THE LEPIDOPTERIST'S CALENDAR, giving the *Time of Appearance of the British Lepidoptera*, as far as they are known, in the *Imago*, *Larva* and *Pupa* states; with a classified Arrangement of the Larvæ-food. By JOSEPH MERRIN.

The work contains some useful Notes under each Month; and having, during its progress through the press, been revised and amplified by several of our ablest Entomologists, its accuracy is guaranteed.

"At length we have a complete Calendar of the British Lepidoptera, published at the low price of eighteen-pence. On the whole we are of opinion that this volume will be found very serviceable to all that numerous class who have not already *learned everything* by their own experience."—*Entomologist's Weekly Intelligencer.*

"In this little work are given not only the time when, and the place where, to catch our butterflies and moths, but we have a dietary for the caterpillar of the various species. This imparts an especial scientific value to the Lepidopterist's Calendar."—*Literary Gazette.*

London: E. Newman, 9, Devonshire Street, Bishopsgate, N.E. Sent free on receipt of 1*s.* 6*d.* or 2*s.* in postage stamps, by the Publisher, or the Author, Gloucester.

CONTENTS.

Proceedings of Natural-History Collectors in Foreign Countries, *M. H. Mouhot*, 7033.

Quadrupeds.—On the Habits of the Aye-Aye of Madagascar, *Humphrey Sandwith, Esq.*, 7044. The Hybrid between Horse and Deer, *George Guyon, Esq.*, 7048. Birth of three Bears at Clifton Zoological Gardens, 7048.

Birds.—Wild Fowl in the Ornamental Waters of London, *Rev. H. Harpur Crewe, M.A.*, 7049. What is the use of the Oil-gland at the base of the Tail of Birds? *Rev. Arthur Hussey, M.A.*, 7049. Occurrence of the Wood Warbler (*Sylvia Sibilatrix*) near Penzance, and Note on the Migratory Warblers, *Edward Hearle Rodd, Esq.*, 7050. Remarkable Monstrosity in the Beak of a Sparrow, *Edward Newman*, 7051.

The Sea Serpent, *George Guyon, Esq.*, 7051.

Fishes.—Note on the Piscivorous Propensities of the Common Carp, *J. H. Gurney, Esq., M.P.*, 7052. Note on the Syngnathidæ or Pipe Fish Family, *William Andrews, Esq.*, 7052.

Mollusks.—A Day among the Cryptochitons, *Arthur Adams, Esq., F.L.S.*, 7054.

Crustacea.—Crustacea casting off their Legs, 7054; Situation of Pyrgoma, *George Guyon, Esq.*, 7055.

Insects.—A Glimpse of Mull and its Fauna, *Alexander Somerville, Esq.*, 7055. Capture of Deilephila lineata at Brighton, *Thomas Thorncroft, Esq.*, 7059. Capture of Deilephila lineata near Exeter, *Rev. J. Hellins*, 7059. Capture o Deilephila lineata, *R. M. Stewart, Esq*, 7059. Larva of Talæporia pseudo-bombycella carnivorous, *Charles Healy*, 7059. Food-plant of Œcophora tripuncta, *Edward Parfitt, Esq.*, 7060. On the capture of Dermaster Blaptoides in Japan, 7060; On the Capture of Carabi in Manchuria, 7061; Opatrums and Sand, 7062; On the Capture of Dicranocephalus Wallachii in the Korea, 7062, *Arthur Adams, Esq, F.L.S.* Chrysomela marginalis found on the Mainland of Caithness, N.B., *Charles William Peach, Esq.*, 7063. Notes on the British Trichopterygidæ, with Descriptions of some New Species, *Rev. A. Matthews, M.A.*, 7063. Note on Brachycentrus subnubilus of Curtis, *Edward Parfitt, Esq.*, 7068.

Proceedings of Societies.—Entomological Society, 7069.

Notices of New Books.—'The Canadian Naturalist and Geologist,' 7072. 'Animal Physiology,' 7072.

Price 18*s., post free.*

A HISTORY OF BRITISH FERNS. By Edward Newman, F.L.S. Comprising under each Species carefully accurate Figures, detailed Descriptions an ample List of Localities and minute Instructions for Cultivating. Cloth, gil "In accuracy of observation, elaborateness and clearness of description, and beauty o illustration, this work does not possess its equal."—*Annals and Magazine of Natura History.*

London: John Van Voorst, Paternoster Row.

E. NEWMAN, PRINTER, DEVONSHIRE STREET, BISHOPSGATE, N.E.